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Marathon Paper Mill Extension Is Under Way

Construction Started On New Warehouse and Machine Shop at Ashland, Wis., Plant—Output of This Mill Consists Mainly of Paper Napkins and Bread Wrappers—Kimberly-Clark Corp. to Start Lakeview Paper Mill at Neenah For Manufacture of Specialties —Northern Paper Mills to Start Operations on New Machine

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 29, 1929.—Expansion of the Marathon Paper Mills Company's mill at Ashland, Wis., is under way. Construction has been started on an addition 34 by 160 feet in size, for a warehouse and machine shop. The new unit is being built over the large settling basin which holds 1,500,000 gallons of water for mill purposes.

Reinforced concrete, structural steel and brick will be used for this addition so that it will be fireproof. A shipping room as well as the warehouse will be housed there with facilities so that three freight cars can be under roof at one time for loading in all kinds of weather.

Among other improvements made since H. Josephs has become manager of this mill is the installing of a ten inch pipe line extending 1,600 feet into Chequamegon Bay so as to insure a pure water supply. Lumnite concrete floors have been placed in the finishing room. The plant now employs 145 persons, and about twenty are to be added after the building operations are completed. The output of the Ashland mill consists mainly of napkins and bread wrappers.

Kimberly-Clark Earnings

Increased earnings are shown by the Kimberly-Clark Corporation, Neenah, Wis., for the first six months of 1929, according to a report issued recently. Earnings for this period were $1,366,259, or the equivalent of $2.78 a share on 490,000 shares of common stock. For the same period a year ago the earnings were $2.21 a share. The company is preparing to start another mill soon, as it has purchased the plant of the former Lakeview Paper Company, at Neenah, Wis., and is changing the machinery over to specialty lines.

New Machine for Northern Paper Mills

Indications are that the Northern Paper Mills, Green Bay, Wis., will start operations on its new paper machine now under installation about September 15. This machine will be known as No. 7, ordered from the Beloit Iron Works and will replace machines No. 1 and 5, now obsolete. The new one will turn out tissue paper in a web 175½ inches wide, with a minimum output of 30 tons daily, increasing to 45 or 50 tons. The speed will be 1,200 feet a minute as compared with 400 to 600 feet on the old machines. The machine is being installed in a new building erected especially for it, utilizing a court in the present group of buildings.

The exterior of the new warehouse the company has been building is completed, and the interior is now being fitted up for use. This unit is three stories high. It will provide increased pulp storage, and also will house offices of the engineering, employment and laboratory departments, and the repair shops.

Riverside Reorganization Plan

Reorganization of the Riverside Fibre and Paper Company, Appleton, Wis., is seen in the filing of articles of incorporation for a new company to be known as the Riverside Paper Company. The firm is to issue 15,000 shares of common stock, but the amount of the capitalization is not stated. No announcement has been given out by the company, and the identity of the new incorporators is also being kept secret for the present. The company has built a new mill and power plant within the last few years. It is believed that the present move is to arrange for the refinancing of the company.

To Oppose More Power Dams

Construction of more power dams in Wisconsin will meet with opposition from the Wisconsin Conservation Commission, according to a resolution adopted recently by that body. It is contended that the dams are responsible for the destruction of millions of fish every year, especially where they become trapped in shoals. The commission desires restraining action until some remedy can be found for the present situation, and study is being devoted to that matter at the present time. The railroad commission has not announced whether it will invoke restraining action as desired by the conservation group.

Greater Fire Protection for Forests

A plan for greater fire protection in Wisconsin's vast forest acreage has been announced by C. L. Harrington, state forester. Boy Scouts will cut trails through sections of northern Wisconsin over a large area so there will be fire breaks and easier access to fire districts when a blaze is discovered. Camps will be established for the scouts each summer and they will cut trails for at least the next five years until the wooded areas are quite well supplied. State papers will be prepared thus first, and other sections then will be included. Forest fires are found to be the most serious source of the dwindling lumber and pulp wood supply.

D. W. Bergstrom's Estate

An inheritance tax of $67,876.54 paid to the state of Wisconsin is an indication of the size of the estate left by the late Dedrick W. Bergstrom, who was president of the Bergstrom Paper Company, Neenah, Wis. The tax was the largest ever paid on inheritances in Winnebago county, where he lived. The residue of the estate is estimated to be well over a million dollars.

News Print Conditions Improving in Canada

Exports In June Showed Surprising Gain Over Corresponding Period Last Year—Murray Bay Paper Mill to Resume Operations In September Next—Construction of Canadian International's New Paper Mill at Dalhousie, New Brunswick, Well Advanced

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., July 29, 1929.—The improved conditions in the news print industry are being reflected in a marked interest in paper securities on the Montreal Stock Exchange. Returns for June show that news print exports in June were almost 25 per cent greater in volume than in June, 1928, a surprising record under all the circumstances. It is now generally assumed that the news print industry has turned the corner, and that from now on conditions will be of a constructive character. As a consequence investors are of the belief that the news print stocks represent at the prices which have been prevailing, some of the most attractive investments on the market for a long pull, and demand for these securities have shown a sharp upturn in price, with American investors supplying the lead for the demand. The stocks most actively in demand are Abitibi, Brompton, Canada Power and Paper, Dryden, Donnacona, International, Port Alfred, Price Bros., and St. Lawrence.

Murray Bay Mill to Operate

The Murray Bay Paper Mill, which now belongs to the Abitibi Company, and which has had a checkered career, is to be put into operation in September next. Two 156-inch paper machines are now being assembled, and power will be supplied under contract with a subsidiary of the Shawinigan Water and Power Company. The ground wood mill, including hydraulic development with an installed capacity of 8,450 h.p., is leased. Wood will be supplied from Crown timber limits in the vicinity of the mill, on which the company has secured cutting rights.

Mersey Paper Developments

The Mersey Paper Company's news print mill in Nova Scotia shows every evidence of coming into operation on contract date early next year, and active preparations are now going ahead for marketing the product. Being situated on tide water, the company is in a position to deliver cheaply at coast points in the United States, and several ships are to be operated for this purpose by a subsidiary, the Mersey Shipping Company. Arrangements are said to have been made for delivery of paper to New York publishers, and it is understood that the company is considering Boston as a delivery port.

Manitoba Paper Enlarging Capacity

The Manitoba Paper Company is enlarging its plant, and is erecting buildings to house additional grinders, the work representing an investment of about a quarter of a million dollars. The additional grinders will permit the paper mill to operate at full capacity whenever required.

International's New Mill Well Advanced

The news print mill which the Canadian International Paper Company is erecting at Dalhousie, N. B., is so well advanced that all the mill buildings will be roofed within a few weeks.

Howard Smith Shares Listed

Following the absorption of the Canada Paper Company by the Howard Smith Paper Mills, 20,000 shares of the common stock of the latter company are being listed on the Montreal Stock Exchange, to take the place of a similar number of Canada Paper shares.

Fraser's Mill Expansion

A second catalogue paper machine is to be installed at Madawaska, Me., by the Fraser Companies, Ltd. This machine has been ordered from Wilmington, Del., and is a 236-inch Fourdrinier. This will make a total equipment of six machines in the Madawaska mill. The pulp used at the mill is produced at Edmundston, N. B., and pumped across the river in slush form. The 45,000-ton bleached sulphite mill which the firm is erecting at Athol, N. B., is expected to come into operation by January 1, 1930.

Paper Import Decisions

The United States Customs Court has in rather sharp language refused to grant a remission of additional duties levied against several shipments of fancy decorated envelope lining which was found to have been undervalued. These additional duties are imposed for undervaluation when the importer can not show to the satisfaction of the court that there was no intention to deceive the customs authorities. The shipments are among the large number of cases in which the Import Committee of the American Paper Industry has been interested in behalf of the domestic producers. In ruling on the importations the justice rendering the decision said:

"The testimony of the witness seemed impossible to reconcile, the court saying 'If there is a combine which controlled all the export prices for this type of paper in Germany it seems strange that each of the four samples forwarded was quoted at a different price, and that even the highest was found to be 28 per cent below the dutiable value.'"

The United States Court of Customs and Patent Appeals has finally decided the case which involved the dutiability of cellophane. Importers tried to secure admission of this product as greaseproof paper at 3 cents per pound and 15 per cent, but the customs officials held it to be dutiable at 25 per cent, a higher rate, as similar to gelatine in sheets. The domestic manufacturers took this ruling to court and secured a decision from the United States Customs Court that it was dutiable at 60 per cent as a compound of cellulose. The higher court, however, has ruled that being in sheets, and not manufactured, the proper rate is 40 per cent, giving the domestic producers better protection than previously accorded, but not as high a rate as claimed. The Import Committee did not participate in the trial of this case, but watched the developments closely because of the relationship of cellophane to the higher grades of glassine paper. The lower duty claimed by the importer would make foreign cellophane a dangerous competitor for domestic glassine.

Z. W. Ranck Gets Gift from Rotary Club

DAYTON, Ohio, July 28, 1929.—Z. W. Ranck, retiring president of the Middletown Rotary Club, has been presented with an attractive silver pocket knife, in appreciation of his services rendered during the year. Mr. Ranck has been prominent in the affairs of the Club and will continue to wield an influence for good among its membership.

Mr. Ranck is president of the Crystal Tissue Company, located one-half mile south of Middletown, one of the largest plants in the country of its kind. Mr. Ranck some time ago invited the members of the Rotary Club to inspect the mill.

The custom of visiting plants of members is being continued, the policy of the organization being to have one representative from each business in the membership in a given community. In this manner, Mr. Ranck represents the paper trade. He has traveled widely and his talks have been interesting features of noontide sessions which are held once each week.

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Canadian News Print Shipments Well Ahead

Record for Four Weeks Ending July 6 Shows 15 Per Cent Advance Compared to Similar Period Last Year—Big Gains Made In Practically All News Print Stocks—Price Bros. Set New High Market for 1929 With Advance of 30 Points Above Low For Year

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., July 29, 1929.—The big gains made in the news print stocks during the past week have drawn attention to the fact that few industries possess greater recuperative powers than that of Canadian news print. It was not very long ago that news print stocks looked as if they were out of the picture for a long time to come, but with the bringing into force of the pooling agreements last spring among the big companies and the fixing of news print at a price of $55.20 per ton, the industry settled down to business once again and started to recover its good name. Of course, the happier tone within the industry was materially assisted by the fact that consumption in the United States, which is the biggest market, has been going forward steadily. American advertisers, aided by prosperous conditions, have been using more space and the demand from this source has been well maintained. Then, also, cheaper news print prices have undoubtedly had their effect in causing some increase in demand. Another factor has been the satisfying of deferred demands coming from those who refrained from buying earlier in the year, due to the fact that the agreement among the news print producers was not signed and sealed until many months after the usual date.

It was not until a few weeks ago that investors began to realize that the news print industry had really turned the corner. Until then news print stocks had been put to one side as it were, on the ground that they could probably be picked up as cheaply a month or a year hence, and that in the meantime, money could be put to a more profitable use. Now, however, it is being realized what extraordinary recuperative power the industry has, and many investors and speculators are placing substantial orders for news print shares because they feel that if they do not purchase they will "miss the boat" and will have to pay a substantially higher figure for their favorite stocks if they wait much longer. Even at that, it probably was the New York incentive that caused the sharp upward swing that occurred last week. In the first place, New York has always more or less considered Abitibi as something of a power proposition as well as a news print producer, which was probably responsible for some of the buying in sympathy with the upward swing of the utility stocks. Then the utility market has indirectly affected the other news print leader, namely Price Bros., whose holdings of American Aluminum Company have appreciated tremendously, due to the rise of the stock in New York. As for the industry itself a good indication of the improved condition is the fact that shipments for the four weeks ended July 6 were 15 per cent ahead of the similar period last year. On the average the active Canadian news print stocks are selling at something like 10 points above their low for the year, while one issue, Price Bros., has jumped nearly 30 points above its low figure, and has set a new high mark for the year.

Canada Paper Elects Directors

At a meeting on July 16 the provisional board of directors of the Canada Paper "Wholesale," Ltd., Toronto and Montreal, resigned and the permanent board was elected. Following are now the directors of the concern: H. B. Donovan, Toronto; F. Willment, F. J. Campbell, J. B. Larkin and E. K. Robinson, Montreal. Officers of the company are: H. B. Donovan, president and managing director; F. Willment, vice-president; G. A. Hayward, Toronto, secretary-treasurer; R. H. Dandridge, assistant secretary-treasurer. Head office and warehouse is located at 109 Simcoe street, Toronto, and the Montreal offices and warehouse are at 124 McGill street, Montreal. The business of the company has so far been eminently satisfactory and a rosy future is predicted. The company has adopted as its slogan "The House of Quality and Service."

Notes and Jottings of the Trade

The Hinde & Dauch Paper Company, Toronto and Montreal, and making box board and corrugated board in its Montreal plant, has recently put into service the 100 per cent addition that has been building and is now equipped with the most approved machinery. It makes boxes and packing cases, using for linings and covers paper made at the Trenton mill. The Montreal plant is running six ten-hour days a week, while the Toronto plant is operating on a 24-hour basis.

Creative ideas on the use of Thum's Test, Byronic Book, Byronic Cover, Bard of Avon, and Carlyle Japan, is the theme of a folder showing specimens of fine printing on these deckle edge papers produced by the Howard Smith Paper Mills. Some excellent suggestions to printers are available in the folder.

G. H. Goldsborough, construction engineer of Iroquois Falls, Ont., and W. G. Reekie of Fort William, Ont., are now at the Murray Paper Mill to supervise the starting up of two machines at the plant.

Louis Lemieux, in charge of the enforcement of the Dominion Marking Law in behalf of the Canadian Pulp and Paper Association, was in Toronto a few days ago in the interest of the paper board section.

Members of the Woodlands Section of the Canadian Pulp and Paper Association in Ontario will attend a meeting August 10 to 14 in Montreal, which is to be followed by an automobile excursion into New York, New Hampshire and Vermont, where forest demonstration camps, logging camps and forest nurseries will be visited.

E. H. Wilkinson, of the E. H. Wilkinson Company, paper mill representatives, Toronto, has gone, with his family, on a fishing expedition to the Temagami district of Ontario.

The Sommerville Paper Box Company, London, Ont., have constructed a very fine show room in their plant for the display of their products.

V. T. Haney, Toronto representative of the Rolland Paper Company, has returned, with his family, after a holiday spent in the Eastern Townships of Quebec.

George Davidson, sales manager of the Howard Smith Paper Mills at Montreal, was a visitor to the Toronto office of the company a few days ago.

Neil Powter, of the advertising department of the Howard Smith Paper Mills, Montreal, has been attached to the Toronto office of the company for sales promotion work.

Canadian Corrugating and Container Company, Young street, Hamilton, Ont., has purchased 220 feet of land on Wellington street in that city from the Canadian National Railways and will erect a new manufacturing plant there.

American Writing Gets Building Contracts

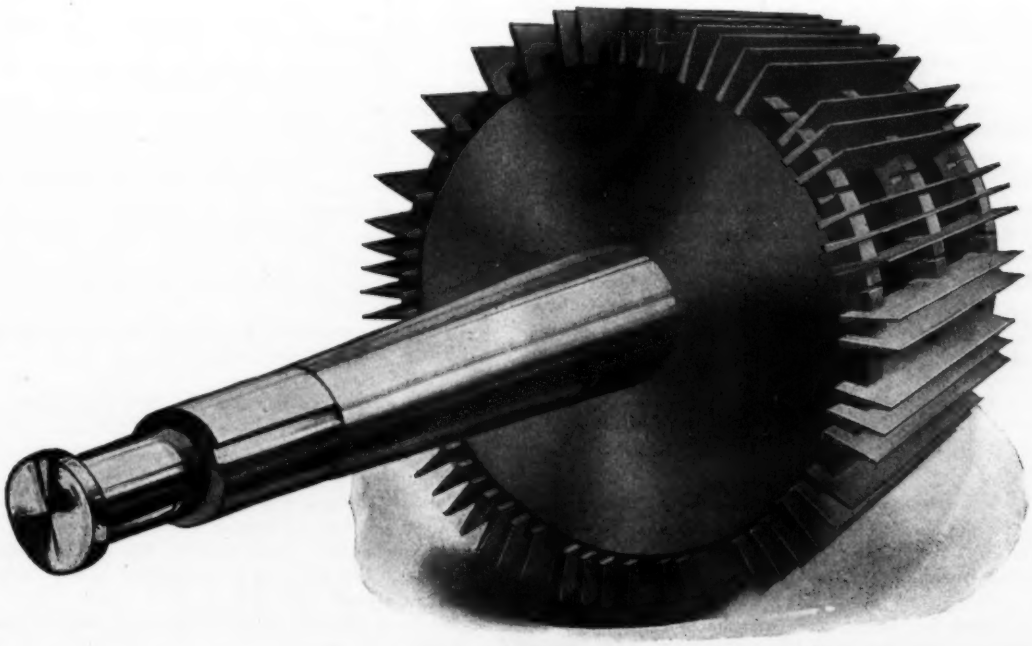
[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., July 30, 1929.—The American Writing Paper Company, Inc., was granted two building permits the past week; one to make extensive alterations in the stockhouse of the Beebe & Holbrook Division, and the other to make alterations in the main offices of the company in the "flatiron" building, Main and Canal streets.

New Beater Rolls
Old Rolls Rebuilt

Downingtown makes beater rolls of all kinds, both bandless and banded and rebuilds old rolls of all makes to the bandless type, frequently saving the cost of a new shaft. The illustration shows a Downingtown Bandless Roll partly filled,—note how the fly bars fit into dovetail slots in the head. This construction has withstood the test of time in mills making many grades and the number of repeat orders received is undeniable evidence that they meet all mill conditions. Our Bulletin 113 fully describes Downingtown Beaters and Rolls. Send for it.

DOWNINGTOWN MFG. CO.
DOWNINGTOWN, PA., U. S. A.



Pennsylvania Paper Mills Extending Output

Gratifying Demand Experienced for all Grades of Uncoated Book Papers—Request for Better Grades of Writing Paper Showing Improvement—News Print Paper Steady, With Prices Ruling Firm—Board Manufacturers Suffering From Keen Competition

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 29, 1929.—While a drifting tendency is most prevalent in the paper houses there is a fairly good market for hot weather supplies. Dealers are not giving any special attention to preparation for Fall stocking, preferring to await some signs of revived interest on the part of consumers before making purchases of any size. The mills are taking the opposite attitude and are fairly well occupied in extending production. There has been a gratifying demand from the mill representatives and wholesalers who have been enjoying a livelier summer business than the distributors in contract orders for all grades of uncoated book papers and special stocks in writing paper and cover grades although the latter are not as active as the unfinished book stocks. The better grades of writing papers are improving. News print is steady with prices holding firm although demand is not as brisk as might be expected at this time.

Board mills continue to suffer from competitive business among the larger producers and while there are encouraging orders to be had they are still at prices of the last six months. Building boards are less active but straw boards are fairly holding to the early summer demands although they are not up to normal. Prices are steady on the latter grades. Container manufacturers are now broadening operations preparatory to the coming autumn demand.

Though the wrapping paper trade has not been up to normal this season there has been a slight improvement in demand. Manufacturers are making offers to the dealers and orders are growing. Tissue papers are firmer as little competitive bidding enters into present day business with the elimination of former mills from the local field, though demands are accordingly limited.

McDowell Mills Extend Glassine Production

As the glassine situation in the local trade improves the McDowell Paper Mills in Manayunk are extending production. The McDowell Mills, one of the largest producers of glassines and grease proof papers in this section, has been enjoying a fairly gratifying demand for these papers. This brighter aspect to the glassine situation comes after prolonged lagging business due to the many disturbing factors of competition and indicates the firmer markets that now loom for the autumn.

Fire Destroys Plant of Hemingway Co.

Fire last Tuesday destroyed the upper floors of the five story building occupied by the Hemingway Paper Company, paper stock dealers, at 828-830 North Hancock street. The four upper floors were used as warehouse, sorting and baling plant by the company of which Harry Bailey is head. The fire started in the rags stored on the third floor. Losses to building and equipment as well as stock amounted to more than $15,000. Harry Bailey, head of the firm, is a former president of the Wholesale Waste Merchants Association who took over the business established more than 75 years ago by the father of Edward Hemingway, who retired about eight years ago.

New York & Penn. Co. Use Westinghouse Equipment

The plant of the New York and Pennsylvania Paper Company at Lock Haven, Pa., has been equipped with two new sectional paper machine drives of the Westinghouse Electrical and Manufacturing Company type. The Westinghouse drives in this mill are now in operation, having been completed during the past month. There has also been recently installed in the mill a single motor paper machine control and regulator in connection with a General Electric Company single motor paper machine drive. The paper machine equipment was installed last winter for the manufacture of book papers used chiefly by the Curtis Publishing Company for its various publications, including the *Saturday Evening Post* which requires a special grade produced by a particular type of paper making machine designed for use by the local publishers and to fit its need for a light weight and substantial book paper.

Castanea Paper Co. Installs Electric Units

Another dual frequency super-calender drive has been installed in the mill of the Casanea Paper Company, Lock Haven, Pa., for the operation of the calender stack. The new Westinghouse Electric super-calender drive will operate the nine-roll 150 inch super-calender stack. The new drive is a dual frequency super-calender type designed to give a slow steady threading in speed combined with high operating speed. This is a development of the Westinghouse Company which has been in course of perfection the past three or four years and which is now becoming popular in the paper making industry. This is the third dual frequency super-calender drive of the Westinghouse type which has been installed in this plant, also given over to production of paper for the Curtis Publishing Company requirements.

Philadelphia Mfg. Co.'s Specialties

Following a successful business in the manufacture of its own development in the Mineralite shipping containers, the Philadelphia Manufacturing Company, with offices in the Atlantic Building and plant at Water and Wolf streets, is now turning its attention to the manufacture of these hardy shipping devices and substitutes for wooden containers for all kinds of trades. The firm is now making these mineralite containers for many industries and supplementing its standard sizes by specially constructed containers for the trade and for the consumers who desire a shipping packet that will hold tin or other cannisters with contents of liquid products. The Philadelphia Manufacturing Company is turning out large quantities of these containers used by large oil, paint, or liquid products manufacturing concerns.

Satterthwaite-Cobaugh Co. New Converting Division

An entirely new department has been added to the Satterthwaite-Cobaugh Company, Inc., 217 Chestnut street, in a cutting division which will be equipped to convert cardboard products of all kinds. There is now installed a full equipment of rotary cutters made by the Langston Company, of Camden, which will provide for the conversion of cardboard into cards for engravers, printers, greeting card manufacturers and stationers, as well as for the paper trade. There are folders showing the complete samples of stocks, sizes and shapes which are available to the trade from the smallest of cuttings to the larger assortments of forms which will be standardized lines.

Penn Card & Paper Co., Inc., Expansion

The Penn Card and Paper Company, 20 North 6th street, has expanded its lines of fine papers by the addition of the Emblem bonds and ledgers made by the Lee Paper Company, of Vicksburg, Mich. The new Emblem papers will be stocked fully in the Penn Card and Paper Company warehouses with nine colors and white completing the grades carried. The Emblem ledgers are of linen weave. The line will be represented in this territory by the local paper house.

Moore & White to Build Machine for Scott Paper Co.

Another paper making machine is to be built by the Moore and White Company, paper machinery manufacturers, 17th and Allegheny streets, following the completion of the recent speedy mechanical unit which was placed in operation by the Scott Paper

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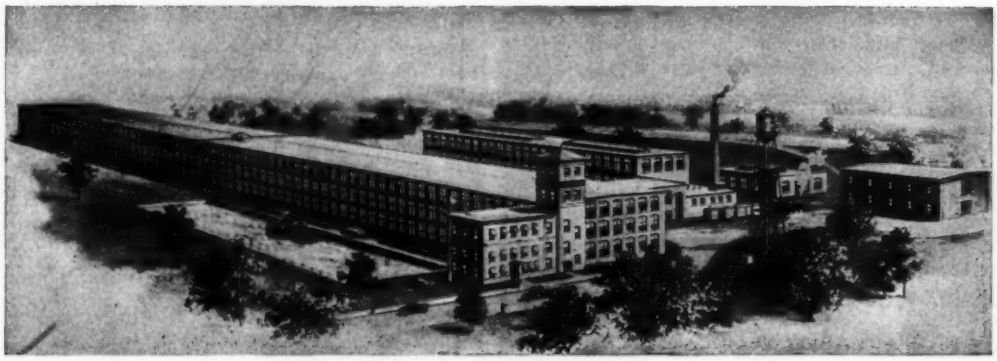

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If any felt need be "tailor-made" it is the Bottom. -:- -:- Whippers, showers, tensions, speeds all add to the complications. The felt must be right or production will suffer

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Before manufacture of a felt is started the individual requirements are carefully analyzed by our Designing Engineers. That is why Albany Felts are so successful.

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ALBANY FELT COMPANY

ALBANY, N. Y.

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Company, of Chester, Pa., last month. The new paper making machine which is to be added is of the same size as the lately completed equipment and will have a production record on a parity with the recently completed unit. It will be 92 inches and will be devoted to the production of tissues used for the manufacture of the Scott products. Its rapidity will also be on a parity with the latest installation which produces 1,400 feet of paper per minute. Construction of the new machine in the Scott Paper Company plant is now under way and will be ready for Fall operations.

Howard Taylor To Travel Abroad

President Howard Taylor, of the W. C. Hamilton & Son Paper Company, Miquon, sailed July 26 for Europe, where he will spend the remainder of the summer touring the sight seeing places on the Continent. President Taylor recently was confined to the hospital where he underwent an operation for the removal of his tonsils. The trip abroad will be a recuperating sea voyage as well as pleasure tour.

Paper Trade Associations Adjourn Sessions

For the remainder of the summer months the two trade associations will adjourn meetings pending the passing of the vacation days. The Philadelphia Paper and Cordage Association and the Paper Trade Association, the former representing the mill men and the wholesalers of papers and twines and the latter the distributors, have postponed the usual monthly sessions until September owing to the absence from the city of members who are on vacation.

Gear Convention in Philadelphia

Through the efforts of George W. Markland, chairman of the board of the Philadelphia Gear Works, manufacturers of gears for paper mills and other industries, and a member of the Philadelphia Chamber of Commerce Industrial Relations Committee, the annual convention of the American Gear Manufacturers' Association will be held here on October 10, 11 and 12. This decision was reached last week when the officers met here.

To Build Big Kraft Mill Near Tuscaloosa

A press dispatch from Tuscaloosa, Ala., says that "The Champion Fibre Company of Canton, N. C., has acquired a site of more than 250 acres at Fox, six miles from Tuscaloosa on the Warrior River, and plans to build a plant to manufacture Kraft paper and paper products.

"That the papers had been passed and all that was needed was settling of titles, was the report here, and that within eight months a mill, as large as the Gulf States Paper Corporation, in operation on the river a few miles from the city, is assured.

"Negotiations for the site have been under way several weeks. Options were taken from a corporation holding the site at Fox, which was abandoned a few years ago by Henderson Lumber Company.

"A survey has been made of the houses which were used by the lumber company with an idea of recovering some of them for use by employees of the new plant.

"Fox is in a well located timber area. Roads can be built up so that timber of the size required in the paper mills can be handled daily. Plans of the operation include buying timber from farmers as well as a timber force of the plant. In the marsh land it is understood there is opportunity for planting new timber.

"Propositions have been made as to coal, one of the important items in operation of a paper mill. The Riverview Coal Company is but a mile from Fox. There is good river and rail transportation to the site for handling raw material and also shipping the manufactured products.

"Formal announcement of a second paper mill has been anticipated some time and the reports in Tuscaloosa Saturday brought about optimism. It is understood that the Champion Company will spend $4,500,000 to $5,000,000 on their project here."

Canadian Paper Exports Gain

Canadian exports of pulp and paper in June were valued at $17,288,856, according to the report issued by the Canadian Pulp and Paper Association. This was the second highest monthly total for the year and showed a gain of $1,786,789 over the total for June, 1928.

Wood-pulp exports for the month were valued at $3,732,877 and exports of paper at $13,555,979, as compared with $3,939,810 and $11,562,257 respectively in June, 1928.

For the various grades of pulp and paper exports for the past month and for June, 1928, were as follows:

	June, 1929		June, 1928	
PULP:	Tons	$	Tons	$
Mechanical	19,996	563,056	16,424	445,376
Sulphite bleached	23,818	1,773,602	22,322	1,716,096
Sulphite unbleached	13,916	683,293	18,333	938,659
Sulphate	10,935	650,730	12,984	770,381
Screenings	3,822	62,196	3,396	69,298
	72,487	3,732,877	73,459	3,939,810
PAPER:				
News print	219,895	13,055,556	174,031	11,130,679
Wrapping	1,199	128,567	925	103,140
Book (cwts.)	4,070	44,157	5,493	45,558
Writing (cwts.)	51	1,249	.....	.....
All other	.....	326,450	.....	282,880
		13,555,979		11,562,257

For the first half of the current year exports of pulp and paper were valued at $97,199,980 as compared with a total of $94,104,081 in the corresponding six months of 1928, an increased for this year of $3,095,899.

Wood-pulp exports for the first six months amounted to $21,470,505 and exports of paper to $75,729,475, as compared with $22,339,880 and $71,764,201 respectively in the first half of 1928.

Details for the various grades of pulp and paper exported in the six months' period are as follows:

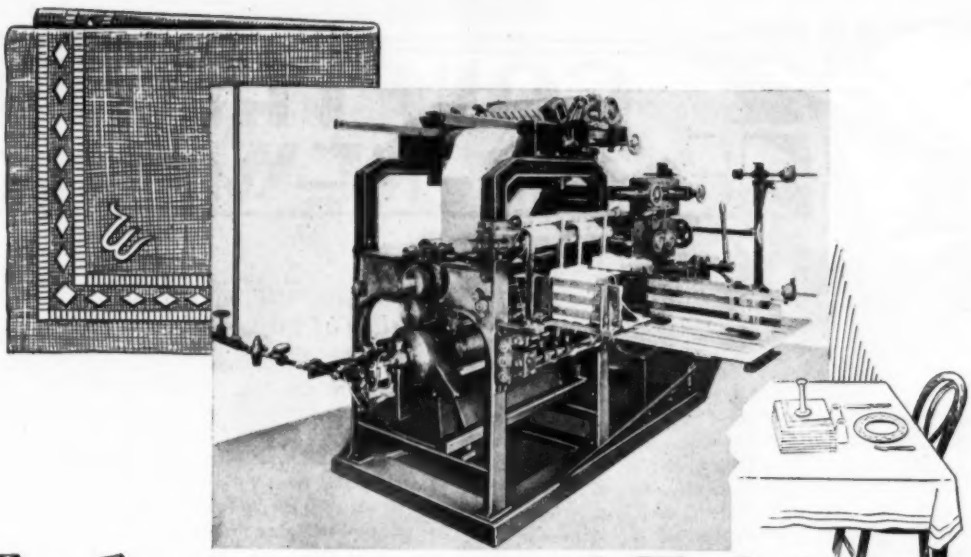
	Six Months, 1929		Six Months, 1928	
PULP:	Tons	$	Tons	$
Mechanical	93,253	2,531,483	86,921	2,349,043
Sulphite bleached	131,313	10,008,525	123,863	9,337,226
Sulphite unbleached	91,472	4,546,128	108,677	5,509,849
Sulphate	68,674	4,088,745	81,610	4,837,811
Screenings	16,711	295,624	15,200	305,951
	401,423	21,470,485	416,271	22,339,880
PAPER:				
News print	1,210,301	72,619,227	1,065,380	68,704,892
Wrapping	7,715	835,123	8,030	878,881
Book (cwts.)	37,673	321,319	31,336	256,908
Writing (cwts.)	3,094	27,685	1,724	16,637
All other	.....	1,926,121	.....	1,906,883
		75,729,475		71,764,201

Pulpwood exports have been smaller this year, the total for the first six months being 612,946 cords valued at $5,942,623 as compared with 744,974 cords valued at $6,926,030 in the first half of 1928.

Hearings Resumed in Paper Tariffs

[FROM OUR REGULAR CORRESPONDENT]

PLATTSBURG, N. Y., July 29, 1929.—Hearings on rail paper tariffs were resumed this week at Hotel Champlain on Lake Champlain by the Interstate Commerce Commission, presided over by Johnston B. Campbell, of Washington. Eighty-three persons, officials of railroads, newspapers and others interested in the proceedings are registered here, included among whom are the following: F. N. Henderson, of the Chamber of Commerce, Nashville, Tenn.; Arthur D. Hays, of Washington, D. C.; Joseph Quinlan, traffic manager of the St. Regis Paper Company; E. N. Antoin, H. Laird and M. Walter, representing the *Chicago Tribune;* H. N. Bassette, assistant to the comptroller of the New York Central Railroad; A. H. Campbell, of the International Paper Company; C. C. Ferguson, of the West Virginia Pulp and Paper Company; P. F. Gault, of the Chicago and Great Western Railroad; C. I. Johnston, assistant freight agent of the New York Central; H. Wilson, traffic manager of the Freight Traffic Committee of New York; W. J. Nathey, of the American Newspaper Publishers' Association; H. A. Povelite, assistant freight agent of the New York, New Haven and Hartford Railroad; A. M. Sythe and Alfred Jefferson, of the Canadian Pacific Railroad.



Embossing and Folding

500 fourteen inch napkins per minute!

Paper from two bundles pass through the machine at the same time. A special attachment embosses the name or crest in the corner of each napkin, or the napkin can be printed in one, two or three colors.

The napkins are cut with a smooth, sheer cut.

The folding is done by the new Waldron Centennial Folding machine, which is a rotary folder, enabling us to fold, count and stack 250 to 300 napkins per minute per strand, or 500 to 600 completed napkins per minute.

Write for Catalog 102 which describes the various types of Waldron embossing machines for paper, glassine, foil, etc.

Napkin is under complete control from start of embossing to delivery in rack.

Required speed and pressure are maintained by special roller bearings.

Positive rotary folder insures cut off and folding in register with embossing.

Name embossing can be changed at low cost without changing pattern rolls.

JOHN WALDRON CORPORATION

MAIN OFFICE AND WORKS—NEW BRUNSWICK, N. J.

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208 W. Washington St.

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WALDRON

Paper Converting Machinery

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Cleveland, Ohio.—The Spaulding Fibre Company, 124 St. Clair avenue, has plans under way for a new addition to its plant for increased output, to be one-story, 100x100 feet, brick and steel, reported to cost in excess of $60,000, with equipment. Portion of unit will be used for office service. Site has been selected on Hamilton avenue. McGarry & McGarry, 241 Euclid avenue, are architects. Headquarters of company are at North Rochester, N. H. G. E. Calhoun is manager at Cleveland.

Rochester, N. Y.—The Kee-Lox Manufacturing Company, 10 Keelox Place, manufacturer of carbon papers and other processed stocks, has awarded a general contract to Werner Spitz, 11 Comfort street, for a new factory addition at Keelox Place and Benson street, consisting of two units, two-story and three-story, respectively, estimated to cost about $65,000, with equipment. Leander McCord, Taylor Building, Rochester, is architect. Charles J. Pembroke is president.

Wichita Falls, Tex.—The Wichita Falls Waste Paper Company is planning rebuilding of portion of storage and distributing plant destroyed by fire, July 19, with loss reported at about $30,000, including building and stock.

Neenah, Wis.—The Kimberly-Clark Company, North Commercial street, has awarded a general contract to C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., for a four-story addition to its paper mill, to be 104x122 feet steel and reinforced-concrete, reported to cost about $100,000, with equipment. Superstructure will soon be placed under way.

New York, N. Y.—The Utility Container Corporation, recently organized by John H. Morrison, 160 North 17th street East Orange, N. J., and associates, is planning operation of local plant for the manufacture of paper containers of various kinds. Frank G. Perkins, 118 Willard avenue Bloomfield, N. J., is also interested in new company.

Van Buren, Me.—The International Paper Company, 100 East 42nd street, New York, is reported planning extensions and improvements in its mill at Van Buren including installation of additional equipment for increased capacity. Estimate of cost has not been announced.

Danville, Ill.—In connection with an expansion program at its mill at Danville, now in progress, the Corn Stalk Products Company is projecting plans for at least one and probably two new mills in the South. An increase in capital by $5,000,000 recently was made, the proceeds to be used primarily for the construction of the proposed new mills. The mill at Danville devoted to the production of commercial papers from corn stalks, will be more than tripled in capacity. Another mill is being considered in Louisiana, to utilize bagasse, or sugar cane stalks, as raw material, under a process perfected by the company. The plant will consist of several units and is reported to cost more than $1,000,000, with machinery. The second Southern plant will be located in an area, it is stated, where rice straw can be secured as raw material, and will represent an investment of close to the amount noted for the projected Louisiana mill.

Canton, N. C.—The Champion Fibre Company, Canton, is said to have concluded negotiations for the purchase of a tract of more than 2,500 acres of land in the mountain section of North Carolina and Tennessee, including the majority of Roan Mountain, about 18 miles from Elizabethton, Tenn., and will use the timber for raw material supply for the local mill. The acquisition provides for the timber rights throughout the area.

Menasha, Wis.—The Menasha Porducts Company, Menasha, formerly known as the Menasha Printing and Carton Company, River street, is said to be arranging an early call for bids on general contract for a new addition to its plant, to be one and two-story 120x300 feet, reported to cost in excess of $100,000, with equipment. Large increase in output will be carried out. E. W. Lewandowski is vice-president.

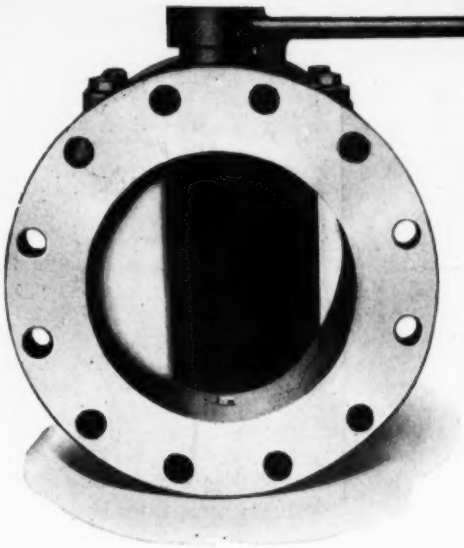
East Spotswood, N. J.—The American Salpa Company has active work in progress on its new mill for the manufacture of special products using paper and kindred materials for a base. The plant will consist of a number of units of brick and concrete, and will represent an investment in excess of $350,000, including equipment. It is expected to have the machinery ready to begin production early in the fall. Employment will be given to more than 600 operatives. The Turner Construction Company, Graybar Building, New York, is general contractor for the plant.

Fort Wayne, Ind.—The Fort Wayne Waste Paper Company is considering the rebuilding of portion of storage and distributing plant destroyed by fire, July 21, with loss reported at close to $30,000, including building and stock.

Hudson Falls, N. Y.—The Mohawk-Hudson Power Corporation, 126 State street, Albany, N. Y., operating the New York Power and Light Corporation, Seneca River Power Company and other electric light and power utilities, is concluding negotiations with the Union Bag & Paper Corporation, New York for water power rights on the Hudson River, about 3 miles from Hudson Falls in the vicinity of the present power plant of the Union Bag and Paper Corporation near Fenimore. The purchasing company has plans under way for a new hydroelectric generating plant at that location and proposes to begin work on the development at an early date. It will be used for power supply to mills in the Glen Falls district, as well as for other commercial service. The plant will be equipped for an initial capacity of 75,000 hp., and is reported to cost upward of $6,000,000, including transmission system. The station will be operated under the direction of the New York Power & Light Corporation, of which Charles G. Ruffner is president.

San Francisco, Cal.—The Alaska Pulp and Paper Company, French Bank Building, with mill at Speel River, Alaska, is said to be planning the utilization of a new process, perfected by a member of the organization for the manufacture of paper plates and similar specialties from wood pulp, and will develop mill facilities for this expansion in the future. The company has secured permission to dispose of a block of 400 shares of preferred stock.

Monroe, La.—In connection with its mill expansion program



POSITIVE OPERATION

with 1/4 turn

VALLEY PLUG VALVES were designed particularly for overcoming any possibility of clogging which would interfere with the operation of the valve.

In opening or closing, the knife-like edges of the cylindrical plug cut away any stock that may be adhering to the seat. This assures quick, positive valve control, governing the flow of stock through the pipes.

The trim, compact design of Valley Valves permits their easy installation and operation in places of the most difficult accessibility. This feature alone has contributed greatly to their widespread popularity.

To executives and production men who are interested in positive valve operation, our special Plug Valve Booklet will be mailed upon request.

Write for it. Address The Valley Iron Works Co., Appleton, Wis.

VALLEY

Equipment for Paper and Pulp Mills

New York Office: 350 Madison Avenue
Western Manufacturing & Sales Division: Smith & Valley Iron Works Co. Portland, Oregon

to increase capacity from 75 to 400 tons of finished stock per day, for which plans are being drawn, the Brown Paper Mill Company, Inc., West Monroe, has concluded arrangements for the purchase of a tract of about 60,000 acres of timber lands and will utilize for raw material supply; a plan of reforestation will be perfected to insure a permanent source from these holdings.

Philadelphia, Pa.—Fire, July 24, damaged a portion of the five-story storage and distributing plant of the Hemingway Company, 828-30 North Hancock street, manufacturer and wholesaler of paper stocks. An official estimate of loss has not been announced. The damage will be replaced.

Appleton, Wis.—The Riverside Paper Corporation, Appleton, recently chartered under state laws, is reported as a successor to the Riverside Fibre and Paper Company, with local mill, and will take over and expand that organization and property.

Kalamazoo, Mich.—The Sutherland Paper Company has closed a contract with a company manufacturing cereal products for a quantity of boxboard for carton manufacture, the order totaling 30,000 tons, or about 1,500 carloads over a period of time. The mill is running on a capacity schedule and will hold to this basis for an indefinite period, giving employment to a large working force. L. W. Sutherland is president.

Chillicothe, Ohio—Officials of the Mead Pulp and Paper Company, with local mill, have formed a subsidiary organization under state laws, to be known as the Mead Strawpulp Company, with capital of 10,000 shares of stock, no par value. Robert Cowden, secretary of the parent company, will be an officer of the new corporation, which will begin to operate at an early date.

Montreal, Que.—The Howard Smith Paper Mills, Ltd., Montreal, is said to have tentative plans under advisement for expansion in the bleached soda pulp mill of the Canadian Cellulose Company, Ltd., a subsidiary organization, with installation of additional equipment to increase the capacity from 50 to 75 tons per day. No date has as yet been determined for the work. The Cellulose company mill is running on a maximum production schedule. The paper mills of the parent organization, devoted to the manufacture of fine paper stocks, are likewise on a full output basis, and will be continued on this schedule for an indefinite time. The plants have a gross output of about 38,500 tons per annum.

New Companies, Etc.

Grand Rapids, Mich.—The Spencer Etheridge Paper Company has been incorporated with a capital of 600 shares of stock, no par value, to deal in paper goods of various kinds. The incorporators are Kirby Evans, George Colby and Spencer Etheridge, 936 Iroquois street, Grand Rapids. The last noted is representative.

Kansas City, Mo.—The Waxide Paper Company, Tracey street and Berkowitz avenue, has filed notice of increase in capital from $400,000 to $500,000, for general expansion. Maurice Berkley is president.

New York, N. Y.—The Great Western Paper Company, care of the United States Corporation Company, Dover, Del., has been incorporated under Delaware laws with capital of $200,000, to manufacture and deal in paper products.

Auburn, Ind.—The Auburn Greeting Card Company, Auburn, manufacturer of card stocks, etc., has arranged for an increase in capital to $50,000, for general expansion.

Rochester, N. Y.—The Oken Paper Company has been incorporated with a capital of $25,000, to take over and succeed to the company of same name with plant at 61 Mill street.

East Providence, R. I.—The Harris Waste Paper Company has been incorporated with a capital of 30 shares of stock, no par value, to deal in paper stocks. The principal incorporator is Harris Ackerman, East Providence.

New York, N. Y.—The Arlington Paper Box Company has filed notice of increase in capital to $10,000 for general expansion.

Trade Mark Department

CONDUCTED BY NATIONAL TRADE-MARK CO., WASHINGTON, D. C.

The following are trade mark applications pertinent to the paper field pending in the United States Patent Office, which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade Mark Company, Barrister Bldg., Washington, D. C., trademark specialists. As an additional service feature to its readers, PAPER TRADE JOURNAL gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering.

HILLSIDE PRESS—No. 281,137. Economy Distributing Company, Inc., Chicago. For printed stationery, namely, billheads, letterheads, envelopes, and blank forms.

DOUBLES—No. 282,684. Skinner & Co., New York City. For toilet tissue paper in rolls.

TISHU-TIES—No. 284,134. Norcross, New York City. For paper ribbon.

ONLIWON—No. 284,516. Albany Perforated Wrapping Paper Company, Albany, N. Y. For toilet paper, tissue paper, crepe paper, and paper towels.

TINY TOTS—No. 284,658. Hoberg Paper and Fibre Company, Green Bay, Wis. For toilet paper and paper towels.

TRANSPARA—No. 284,988. The Menasha Products Company, Chicago, Ill. For waxed paper.

MASSASOIT—No. 285,188. American Writing Paper Company, Inc., Holyoke, Mass. For writing and printing paper.

BEAT YESTERDAY—No. 285,210. Albert E. Jessurun, New York City. For commercial record books.

PRIVASEE—No. 283,435. Curtiss 1000, Inc., St. Paul, Minn. For correspondence and mailing envelopes.

MODERN—No. 283,404. Kurtz Brothers, Clearfield, Pa. For pencil tablets, pen tablets, composition books, writing paper, notebooks, etc.

D S W & Co., WALCO—No. 284,103. D. S. Walton & Co., New York City. For paper bags.

Boston Paper Market Fairly Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 29, 1929.—For the time of year the paper market is reasonably active, with a fair volume of orders being placed among Boston wholesalers. A number of dealers say business is "pretty good," and the outlook is bright for future transactions of substantial size. Printers continue to order in fair amounts, although, as during the previous week, the quantity wanted has been in some cases, rather less than before. In coarse lines a moderately good volume of business has been put through, and in some quarters of the market, the week under review has been more lively than in earlier weeks of the month.

The apparent strength of the box board market is naturally gratifying to dealers. Actual advances in values, however, have not materialized beyond a range of $37.50 to $40 for filled news board and $35 to $37.50 for chip board, so that dealers are hoping for a much more desirable situation than the prevailing one.

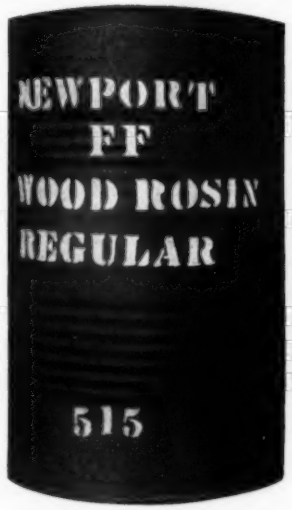
The general market for old papers, bagging and rags is reported to be slow, although values are sustained at the same levels of a week ago. Some of the consuming mills are said to have shut down temporarily on account of low water, brought about by lack of rain.

Miamisburg Paper Co. To Electrify Mills

The Miamisburg Paper Company, Miamisburg, Ohio, is proceeding with the electrification of their present paper mill. Installation consists of complete complement of motors, eliminating all engine drives. A 1,000 k.w. turbine generator is being installed to generate all power requirements, with turbine of automatic extraction type to supply the entire process steam requirements. An especial feature is the variable speed single motor paper machine drive giving a speed variation of 7 to 1.

M. V. Brooks is superintendent. H. S. Taylor, consulting engineer, Dayton, Ohio, is engineer.

NEWPORT REGULAR FF WOOD ROSIN IS THE GRADE MOST USED IN PAPER AND SIZE MANUFACTURE



TO OBTAIN NEWPORT REGULAR FF WOOD ROSIN ON A NET WEIGHT PRICE BASIS BUY IT IN DRUMS

DEPENDABLE UNIFORMITY, CLEANLINESS AND ECONOMY ARE CHIEF AMONG REASONS FOR THE RATHER LARGE CONSUMPTION OF NEWPORT REGULAR FF WOOD ROSIN AT PAPER MILLS AND PAPER SIZE PLANTS

UNIFORM SIZE FROM UNIFORM ROSIN

A Newport Product
Therefore Unexcelled

Sold the World Over by

General Naval Stores Company

Incorporated

NEW YORK	CINCINNATI	CHICAGO
PHILADELPHIA	NEW ORLEANS	MINNEAPOLIS

The oldest and largest organization in the world exclusively engaged in selling "Steam Distilled Wood Turpentines", Pine Oil and Wood Rosin.

TAPPI Washington Convention Plans

Washington, which should be familiar to every American, will be the host of the Technical Association of the Pulp and Paper Industry on September 27 following the three day meeting at Richmond, Va. Instead of having a program in which papers of a technical nature are read, the schedule of events in the Nation's capital will be a series of visits to points of interest to paper manufacturers.

Wardman Park Hotel Headquarters

Of special interest is the selection of the Wardman Park Hotel as convention headquarters. This hotel is unique in that it combines the features of a most attractive summer resort with the advantages of a metropolitan hotel and although having rather high rates, have offered special low rates to the members of TAPPI who will use the hotel. It is within ten minutes of the White House and easily accessible to the United States Bureau of Standards. TAPPISTS will have the use of the great Wardman Park swimming pool which is famous throughout the country as an outdoor Natatorium with a forest setting. Every bedroom has a private bath and the following rates have been specially offered to TAPPI: Single rooms $4—Double rooms $6.

Make your reservations with the Secretary of TAPPI, 18 East 41st street, New York, N. Y.

District of Columbia Paper Mill

Of special interest to pulp and papermakers will be a visit to the only paper mill in Washington, the District of Columbia Paper Manufacturing Company, located in the city proper and on the banks of the historic Potomac River. Using wood, loblolly pine, etc. from their own nearby forests and cooking it by their own modified soda process, this mill is able to produce many grades of paper having properties of special interest to printers. It is believed that this mill produces more grades of paper than any mill of its size in the world. The District of Columbia Paper Manufacturing Company is a corporate member of the Technical Association.

The Government Printing Office

Created as an independent Government establishment to provide printing and binding for Congress and the Federal departments, bureaus, and independent offices, the United States Government Printing Office will be host to TAPPI on the afternoon of September 27th. At present the Office occupies 17 acres of floor space in buildings costing in excess of $4,000,000. 4,150 people are employed receiving annual compensation of $8,500,000. In addition to the large operating plant is the Section of Tests and Technical Control under the direction of Edward O. Reed. This department is well equipped with instruments and personnel to test all of the materials received for the use of the plant and to prepare specifications for all materials, including paper purchased. The Printing Office manufactures for its own use, ink, type metal alloys, press rollers and adhesive compositions. Luncheon will be served to TAPPI members in the Printing Office dining room which seats 700 persons at one time. The time available will be altogether too short to adequately see the many interesting departments but those desiring to remain in Washington for a few days will be welcome to visit the Office at any time.

Bureau of Standards

Under the direction of B. W. Scribner, chief of the Paper Section, the excellent machinery of this section will be kept in operation and production throughout the period of the Technical Association convention. It is here that the new currency paper was developed and almost every grade of paper has been made in the mill, and nearly every paper testing instrument has been studied and reported on by the Bureau staff. An idea of its equipment may be had from the following inventory:

1—150 lb. Manitowoc rotary boiler
1—12½ and 1—50 lb. Noble and Wood beater equipped with cylindrical washers
1—300 lb. concrete beater
1—31 inch Pusey & Jones fourdrinier paper machine, 2 drum reel and combination slitter and winder
1—5 roll Perkins supercalender stack
1—7 roll calender stack
1—14 inch Waldron flat bed brush coater
1—festoon drier equipped with carrier air conditioning and drying system

In addition to the Paper Section there are many other branches of the Bureau that would be of interest to TAPPI members and "open house" will be maintained to accommodate all who may desire to visit the textile, leathers, ceramic, or other sections.

Other Points of Technical Interest

For those who will remain in Washington on Saturday it will be interesting to know that all the Government departments remain open until 4:30 p. m. Much of interest is to be seen at the Bureau of Engraving and Printing where the new currency is being made, and at the Bureau of Chemistry where many studies have been made of the chemicals entering paper manufacture, such as rosin size, etc.

Local Committee

The general committee in charge of the convention in Washington include H. R. Harrigan, G. W. Coggeshall, A. D. White, M. S. Kantrowitz, J. M. Krauss R. R. Machmer, B W. Scribner, M. B. Shaw, R. H. Simmons, O. G. Strieter, L. B. Tucker, C. J. West.

Reservations

Details concerning hotels in Richmond have been published in the trade press. Hotel reservations for the three day convention in Richmond should be sent to the Secretary of TAPPI, 18 E. 41st street, New York, N. Y. and when railroad tickets for Richmond via Washington are purchased, request should be made for a certificate which will entitle those who attend, to a halffare return rate providing at least 150 certificates are turned in at Richmond.

News of the Boston Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 29, 1929.—John Carter & Co., Inc., are distributing a new sample book of Interwoven Cover, manufactured by the Associate Mills, Holyoke, Mass.

The Albemarle Paper Manufacturing Company, Richmond, Va., is to reopen a Boston office, probably in the Chamber of Commerce Building, 80 Federal street. Blair Stringfellow, Jr., is to be in charge. This company closed their Boston office six months ago.

Frank C. Cate, secretary of the Andrews Paper Company, is enjoying a two weeks' vacation at Reading, Mass.

H. H. Rutter, treasurer of Rutter & McNaught, Inc., has been passing ten days at his summer residence, Chatham, Mass.

Suspended Schedules Ordered Canceled

WASHINGTON, D. C., July 24, 1929.—The proposed cancelation of less than carload commodity rates and of the application of certain fifth class rates on cores, paper winding, in less than carloads, from certain points in New York and New England points to points in New England have not been found justified by the Interstate Commerce Commission in an investigation just completed. The Commission has ordered the suspension schedules canceled and the proceeding discontinued.

A man can't lift himself *by his* boot straps!

"A WORKMAN'S only as good as the tools he has to work with"—that's an old saying—but true nevertheless. So don't keep your operators in the dark—don't make them guess at temperatures, pressures, humidity and flow. They can't lift themselves by the boot straps!

Give them Foxboro Instruments. By lending your workmen this helping hand, you'll increase the quality of your paper—you'll save time, labor, fuel and money—you'll give the men their chance to do better work—to improve themselves. They'll make better superintendents for you later on.

Give the Beaterman a Foxboro Recording Thermometer—by *knowing* what his temperatures are he'll be able to turn out a better quality stock, especially if he's doing color work where evenness counts. Give the Machine Tender a Foxboro Duplex Recorder-Controller. It will control the temperature of the dryer rolls, thereby enabling him to turn out paper of absolutely uniform moisture content.

The Foxboro Liquid Level Recorder. This is one of the many instruments that Foxboro has designed particularly for the Paper Industry.

(If your workmen could write their own requisitions—)	
Beater Room—	Foxboro Recording Thermometers—beaters (Indispensable for quality color work) Foxboro Recording Liquid Level Gauge—stock chests
Machine Room—	Foxboro Duplex Recorder Controller — dryer rolls
Digester Room—	Foxboro Temperature—Pressure Recorders —digesters
Power Plant—	Foxboro Thermometers, Draft Gauges, Pressure Gauges, Liquid Level Gauges, etc.

***And you'll find* that, once you install Foxboro Instruments, the workmen themselves will never let you take them out.**

Write or wire the nearest Foxboro Office. Ask for further information about Foxboro Instruments in the Paper Industry.

THE FOXBORO COMPANY

Neponset Avenue, Foxboro, Mass., U. S. A.

New York Chicago Philadelphia Boston Pittsburgh Detroit
Cleveland Tulsa Rochester, N. Y. Atlanta San Francisco
Dallas Los Angeles Portland, Ore. Salt Lake City

FOXBORO

REG. U. S. PAT. OFF.

THE COMPASS OF INDUSTRY

The Foxboro Guarantee, sealed to each Recording and Controlling Instrument.

INSTRUMENTS FOR CONTROLLING, RECORDING AND INDICATING TEMPERATURE, FLOW, HUMIDITY AND PRESSURE

New York Trade Jottings

Hellmuth Muller-Clemm, technical director of Zellstoff Fabrik Waldhof, of Mannheim, Germany, was a visitor at the TAPPI office, 18 East 41st street, New York, last week.

* * *

The New York Division of the Salesmen's Association of the Paper Industry held its mid-summer golf outing on Tuesday at the Leewood Golf Club's links in Westchester County.

* * *

B. Ivar Humble, TAPPI Scandinavian fellow, recently located at the plant of the Container Corporation in Philadelphia, is now engaged at the mill of Bird & Son, in East Walpole, Mass.

* * *

R. G. Macdonald, secretary of the Technical Association of the Pulp and Paper Industry, was in Washington, D. C., last week completing plans with the local committee for TAPPI'S Fall meeting, scheduled for September 27.

* * *

Runar Backstron, recently assistant chemist for the Mosinee Paper Mills, at Mosinee, Wis., sailed aboard the Cunard liner *Mauretania* last week for Europe and will soon take up his duties as chief chemist at Hellefors A/B, in Sweden.

* * *

Castle & Overton, Inc., have moved from their former quarters in the Fifth Avenue Building, New York, to Suite 1040-1048 in the same building. The new offices are more commodious and more convenient. Private offices are provided for the officers and executives of the company, and also for the shipping, book-keeping, sample, stenographic and other departments.

* * *

Alaska Pulp and Paper Company, a close corporation which has operated from time to time, a mill in Alaska, has been authorized to sell to its stockholders 400 preferred shares of $100 par value for 50 a share according to the *Wall Street Journal*. The company, which is capitalized for $500,000, has a net worth of $532,-901. A member of the company is said to have developed a new process for manufacturing paper plates and similar products from wood pulp and hopes to develop the process profitably. C. W. Callaghan is president of the Alaska Pulp and Paper Company.

* * *

Corn Products Refining Company, New York, reports for six months ended June 30, 1929, net income of $6,866,255 after interest depreciation, federal taxes, etc., equivalent after 7 per cent preferred dividend requirements, to $2.36 a share (par $25) earned on 2,530,000 shares of common stock. This compares with $6,026,-054 or $2.03 a share in first half of 1928. Net income for quarter ended June 30, 1929, amounted to $3,430,851 after above charges, equal to $1.18 a share, against $3,435,404 or $1.18 a share on common in preceding quarter and $3,311,347 or $1.13 a share in June quarter of previous year.

* * *

The Veldown Company, Inc., one of the divisions of the International Power and Paper Company, of 100 East 42nd street, New York, announces that The Henle Wax Paper Manufacturing Company, Incorporated, of 535-545 East 79th street, New York, has been appointed sole distributors covering the Eastern section of the United States comprising the Atlantic Seaboard for their Vel-Vo-Pad Candy Wadding. They have every facility and are fully equipped to handle orders for cut sizes in either straight or scalloped edge, also die cut in circles, ovals, etc. They likewise make a specialty of padding, embossed with name or escutcheon, either plain or in gold leaf.

Grays Harbor Paper Co. Files Tax Appeal

PORTLAND, Ore., July 26, 1929.—The Grays Harbor Pulp and Paper Company has filed a tax appeal with the state tax commission from recent decisions of the Grays Harbor county board of equalization.

Cornelius A. Rudolph Dead

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, PA., July 29, 1929.—Cornelius A. Rudolph, who was long linked with the Philadelphia paper manufacturing industry as owner of the former Ashland Paper Mills, located in the Manayunk District, passed away during the week at his home in Lower Merion Township. He had been in ill health for the past eight weeks with complications due to his age. He was 70 years old. He was a son of Sebastian A. Rudolph, founder of the Ashland Mills, and upon the death of the organizer of the business he took over the mills with his brother Sebastian A. Rudolph, 2nd.

The deceased was connected with the Ashland Company when suit was brought against the Pennsylvania Railroad Company for damages due to the smoke and smut from the railroad crossing adjacent to the property after the P. R. R. secured right of way over ground adjoining the plant and laid tracks near the paper manufacturing company's buildings. The Ashland Company was awarded several hundred thousand dollars damages for the ruin to its paper production and the contamination of its water supply. Shortly after the suit against the railroad was settled the Ashland Mills were closed, that stipulation being entered in the settlement of the suit. The owners then retired from the paper industry. The Ashland Mills were founded in 1868 and were closed about twenty years ago.

Mr. Rudolph, who graduated from La Salle College in the year of the Centennial, is survived by his wife, Mrs. Clara Dixon Rudolph; a son, Sebastian A. Rudolph, 2d, of Wynnewood; six daughters, Sister Alberta Joseph, of the Sisters of Mercy; Mrs. Piere Smith, of Trenton, N. J., and Mrs. Jane Rudolph Sanson, Mrs. George M. Dorsey, Mrs. William F. Emory and Mrs. William J. Walsh, of this city; four sisters and twenty-eight grandchildren.

Charge With Starting Fire at Gould Paper Mill

[FROM OUR REGULAR CORRESPONDENT]

LOWVILLE, N. Y., July 29, 1929.—Garfield Brill, an employee of the Gould Paper Company at Lyons Falls, was arraigned in court this week before Justice Roberts charged with starting the fires which swept the finishing room and part of the stock room recently. He pleaded not guilty and was held for action of the grand jury. Everett Pierson, night watchman, told officials of the paper company that he was talking with Brill a few minutes before the fires were discovered. The suspicions of the paper mill owners were aroused when they found that two fires had originated in the finishing room. On the night of the fire only a few employees were in the mill as it had been shut down for the July Fourth celebration.

Fire Damages Waste Paper Plant

[FROM OUR REGULAR CORRESPONDENT]

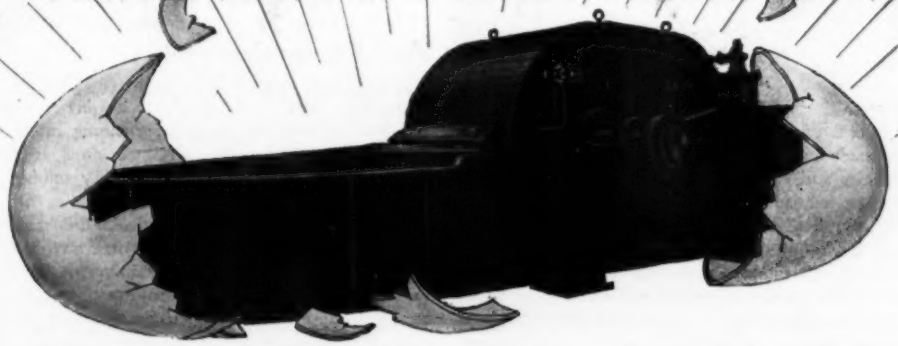
INDIANAPOLIS, Ind., July 29, 1929.—Fire of undetermined origin swept through the four-story building of the Fort Wayne Waste Paper Company in the downtown district of Fort Wayne, Ind., recently, causing damage estimated at $30,000. About four hundred tons of paper was in bales and bundles on the floors of the building. The fourth floor, the most heavily loaded, collapsed. Its load crashed through the third and second floors. The loss is partially covered by insurance.

Chemical Paper Mfg. Co. Gets Contract

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., July 23.—The contract for the construction of the two new additions to the Chemical Paper Manufacturing Company has been awarded to the Casper Ranger Construction Company of this city. One building is to be 60x215 feet and the other 60x120 feet, both two stories high of concrete and steel construction. It is expected to have the machinery installed and the plants in operation by January 1.

FIRST AGAIN



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Modernizing the Power Plant

Steam Superheaters and Fuel Economizers—II

Engineering progress during the past fifteen years has made it possible to reduce fuel consumption in steam generation for power applications by as much as 40 per cent. Boilers have increased greatly in size, capacity and efficiency, but the greater proportion of the marked economy realized has resulted from the increasing application of steam superheaters, fuel economizers and air heaters. In fact, it has been held that the use of superheated steam has really effected such marked economies during this period that a modern steam power plant would be considered incomplete without provisions for adding heat to the steam and reclaiming all possible heat from the products of combustion.

In this country, the trend has been toward high steam pressures and moderately high temperatures, while in foreign lands the trend has been toward moderately high steam pressures and high initial temperatures. However, there are a number of noteworthy exceptions; as, for instance, the plant in Germany at which steam is generated at a pressure of 3,200 pounds per square inch, reduced to 2,400 pounds and then heated to 840 degrees Fahrenheit. Czecho-Slovakia has a plant generating steam at about 1,700 pounds, with a temperature of around 900 degrees. Both Sweden and Austria have plants generating steam at 1,500 pounds pressure and with 700 and 800-900 degree temperature respectively. Egypt is the land of the hottest steam, it would appear, for there a water tube boiler is generating steam at a temperature in excess of 1,100 degrees. In England, likewise, there are a number of installations delivering steam at temperatures between 800 and 900 degrees, but these latter are more in line with established foreign advanced practice, the steam pressures being in the moderately high pressure class. In one plant, for example, while the pressure is only 645 pounds per square inch, the steam is elevated to a temperature of 850 degrees.

The high pressure record in this country is held at present by the installation for the Philip Carey Manufacturing Company now under construction at Lockland, Ohio, where steam at 1,800 pounds will carry 200 degrees of superheat. This represents a steam temperature of 815 degrees Fahrenheit, which is still considerably below advanced practice in other lands. Of the five central stations in this country operating on 1,400 pound steam employing steam at temperatures from 700 to 750 degrees only, three raise the steam to a temperature of 750 degrees, one to 725 and the other to 701 degrees Fahrenheit. The 1,200 pound steam at the Masonite Corporation, Laurel, Miss., which, with the exception of the five central stations operating on 1,400 pound steam, and the plant of the Consolidated Ashcroft, Hancock Company at Bridgeport, Conn., operating at 1,250 pound steam pressure, 800 degrees temperature, is the highest steam pressure in operation on this continent carries no superheat.

It is possible and quite feasible, of course, to obtain the same high thermal efficiency with moderately high pressures and high temperatures, foreign practice, as with high pressures and moderately high temperatures, domestic practice, and the foregoing comments have been made simply to emphasize the very general and universal dependence upon superheating in bettering the fuel rate in steam generation. The instances cited of foreign records, incidentally, pertain for the most part to smaller units in industrial plant installations than the large units in the high pressure installations of the central stations in this country. This is quite significant, for it gives promise that any burden which may be imposed on the domestic industrial plant by virtue of limitations in capacity of the steam generating units may be offset by an increase in the degree of superheat added to the steam.

By the judicious use of relatively common materials now generally available for superheater construction superheaters may be constructed for a final steam temperature of 1,000 degrees Fahrenheit and a steam pressure of at least 850 pounds per square inch. With the use of special alloy tubing, the pressure may be stepped up to at least 1,400 pounds per square inch. In other words, superheaters elevating the temperature of 850 pound steam 475 degrees or 1,000 pound steam 417 degrees can be obtained even today. Just what this may mean in the line of economy is brought out most clearly, probably, by the fact that in turbine performance a decrease in water rate of close to 1 per cent is effected for each 12 degrees of superheat and a decrease in fuel consumption of similar proportion for each 20 degrees of superheat. Then of course, there is the very marked decrease in turbine and other power equipment maintenance secured through the elimination of all possibilities of any moisture being present in the steam at any time or stage in power applications.

Recent Practices in Paper Mill Plants

Excepting only the central stations of the electric light and power industry, no industry has been so quick to grasp the advantages of high pressure, superheated steam operation as that of pulp and paper making. This is well and quite conclusively indicated by the accompanying statistics in regard to high pressure paper mill plants. Incidentally, with a single exception, all the forty installations so listed have been made within the past two or three years, or are in actual course of construction or have been definitely decided upon, and, hence, well portray the trend in the industry. The maximum steam pressure is at the plant being constructed for the Philip Carey Manufacturing Company, Lockland, Ohio, 1,800 pounds per square inch, and the minimum 325 pounds, at the United States Gypsum Company, Oakfield, N. Y., and also at the plant being constructed for the Jon. Heald Paper Company at Lynchburg, Va. These limiting steam pressures are selected simply to provide a comprehensive range of typical high steam pressure installations at the present time.

With only a very few exceptions, notably only the 1,200 pound installation at the Masonite Corporation, previously referred to, and that installed this year at the Howard Smith Paper Mills, Ltd., Cornwall, Ont., all these plants operate, or will operate, on superheated steam. In two cases, however, neither economizers or air heaters are employed. Also, among the mills reporting on

. . . To the Paper Mill Manager

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the use of economizers about half employ such heat reclaiming devices and half do not. As for air heaters, 77 per cent of those reporting employ such apparatus and 23 per cent do not. Only nine mills report using both economizers and air heaters, seven the use of air heaters without economizers and three the use of economizers without air heaters.

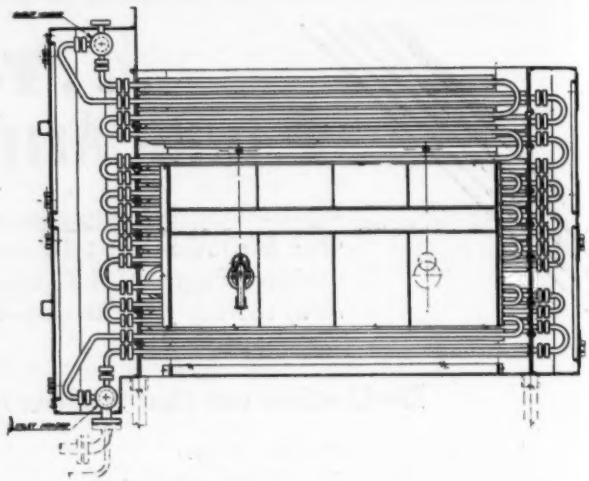
Superheating and Heat Reclamation

Evidence such as this is conclusive indication of the trend in steam generation and utilization in the pulp and paper making industries, of an appreciation by the mills that superheated steam is in fact a simple and positive medium for securing quite a remarkable improvement in the life and economy of steam prime movers and of the steam transmission system. The more progressive mills, almost without exception, seem to have come to consider the employment of superheated steam, not only quite feasible in spite of former contentions that in process work condensing saturated steam would be preferable, but actually essential if conservation of fuel is to be effected, extravagance in the use of steam avoided, the efficiency of prime movers and power units

HIGH PRESSURE PAPER MILL PLANTS IN THE UNITED STATES AND CANADA

Plant	Press. sq. in. lb.	Superheat deg. F.	Economizers	Air Heaters
[1] Philip Carey Mfg. Co., Lockland, O.	1,800	200	Yes	Yes
Masonite Corporation, Laurel, Miss..	1,200	No	No	No
[2] Champion Coated Paper Co., Hamilton, O.	650	325-350	No	Yes
Waldorf Paper Products Co., St. Paul, Minn.	650	155-265	Yes	Yes
[1] West Va. Pulp & Paper Co., Tyrone, Va.	600	...	....	....
International Paper Co., Fort Edward, N. Y.	460	200	....	Yes
Advance Bag & Paper Co., Hodge, La.	450	Yes	....	....
Bogalusa Paper Co., Bogalusa, La...	450	Yes	....	Yes
Canadian International Paper Co.....	450	...	....	....
Champion Fibre Co., Canton, N. C...	450	250	Yes	Yes
Chesapeake Corporation, West Point, Va.	450	100	....	Yes
Minnesota & Ontario Paper Co., Int. Falls, Minn.	450	125	No	Yes
[2] Scott Paper Co, Chester, Pa.....	450	175	....	....
Wausau Paper Mill Co., Brokaw, Wis.	450	Yes	No	No
West Va. Pulp & Paper Co., Covington, W. Va.	425	190	Yes	Yes
Rhinelander Paper Co., Rhinelander, Wis.	415	100	Yes	No
Anglo Canadian Pulp & Paper Mills, Quebec City	400	...	....	....
International Paper Co., Livermore Falls, Me.	400	150	No	Yes
Champion International Co., Lawrence, Mass.	400	Yes	....	....
Cons. Water Power & Paper Co., Wisconsin Rapids, Wis.	400	Yes	Yes	Yes
Cons. Water Power & Paper Co., Port Arthur, Ont.	400	...	....	....
Crocker, Burbank & Co., Fitchburg, Mass.	400	...	....	....
Gulf States Paper Co., Tuscaloosa, Ala.	400	200	....	....
Howard Smith Paper Mills, Cornwall, Ont.	400	No	No	Yes
[1] Nekoosa-Edwards Paper Co., Port Edwards, Wis.	400	130	No	Yes
New Haven Pulp & Board Co., New Haven, Conn.	400	155	Yes	Yes
John Strange Paper Co., Menasha, Wis.	400	150	No	No
Paul A. Sorg Co., Middletown, O...	400	250	Yes	Yes
Fort Frances Pulp & Paper Co., Fort Frances, Ont.	385	...	....	Yes
Kenora Paper Mills, Kenora, Ont...	385	150	No	Yes
Thunder Bay Paper Co., Port Arthur, Ont.	385	247	Yes	Yes
Warren Manufacturing Co., Milford, N. J.	385	100	Yes	No
Strathcona Paper Co., Strathcona, Ont.	385	...	....	....
Grays Harbor Pulp & Paper Co., Hoquiam, Wash.	375	150	....	....
National Paper Products Co., Port Townsend, Wash.	375	150	....	....
Endura Manufacturing Co., Philadelphia, Pa.	354	Yes	....	....
Bergstrom Paper Co., Neenah, Wis...	350	160	Yes	No
Restigouche Paper Co., Athol, N. B.	350	200	Yes	Yes
[1] Jon. Heald Paper Co., Lynchburg, Va.	325	100	No	Yes
U. S. Gypsum Co., Oakfield, N. Y.	325	150	Yes	....

Extracted from "High Pressure Industrial Plants in the United States and Canada," published in Power, May 28, 1929.
[1] In construction.
[2] To be constructed.



Courtesy: Combustion Engineering Corp.

FIG. 1

Compact and efficient type of modern return bend economizer providing two separate water circuits, one running serially through the return bends on one side of the economizer and the other serially through the return bends on the opposite side.

maintained, power developed economically and upkeep expenses kept within reasonable bounds. If it is necessary to have a supply of saturated steam for heating work, a portion of the superheated steam can be de-superheated simply and effectively without heat loss by means of a water spray or by bleeding a turbine or other power unit.

The advantages of using superheated steam as a power medium need no exposition, for they are quite generally appreciated and have already been discussed to some extent in these columns. The degree of superheat now considered essential, however, is a matter of very considerable interest. The average superheat carried in the plants listed in the statistical table is between 175 and 176 degrees Fahrenheit, with a maximum of 350 degrees adopted for the modernization of the plant of the Champion Coated Paper Company at Hamilton, Ohio, and a minimum of 100 degrees in only three of the many plants listed. Even in the latter, steam pressures are relatively high, being 450, 415 and 325 pounds per square inch respectively. Installations carrying the highest superheat, the Champion Coated Paper Company at 325 to 350 degrees and the Waldorf Paper Products Company, St. Paul, Minn., at 155 to 265 degrees, generate steam at 650 pound pressure. At the plants carrying 250 degrees of superheat, Champion Fibre Company, Paul A. Sorg Paper Company and the Thunder Bay Paper Company, Ltd., the steam is supplied at pressures of 450, 400 and 385 pounds per square inch respectively.

The situation in regard to the use of heat reclamation devices, economizers and air heaters, is somewhat peculiar, however, in that practices are far less standardized, and it would seem that considerable progress can still be made in this direction. While it is perfectly true that almost all the new mill plants employ some type of heat reclaiming apparatus of the water, or economizer, type or a variety of air heater, there seems to be little agreement as to which is preferable and only an occasional mill has deemed it advisable to install both economizers and air heaters, as is becoming accepted practice among the electric power central stations. Between these two types of heat reclaimers judging from the statistical records of the forty modern installations tabulated, the preference seems to lean quite decidedly toward the use of air heaters. In fact this is so marked that in view of the well recognized value of an economizer in storing large volumes of hot water for boiler feed and manufacturing processes and also for heating caustic soda and other liquors some reason must exist for lack of greater activity in installing these efficient heat reclaimers.

To Stop Condensation *Correct* the Cause

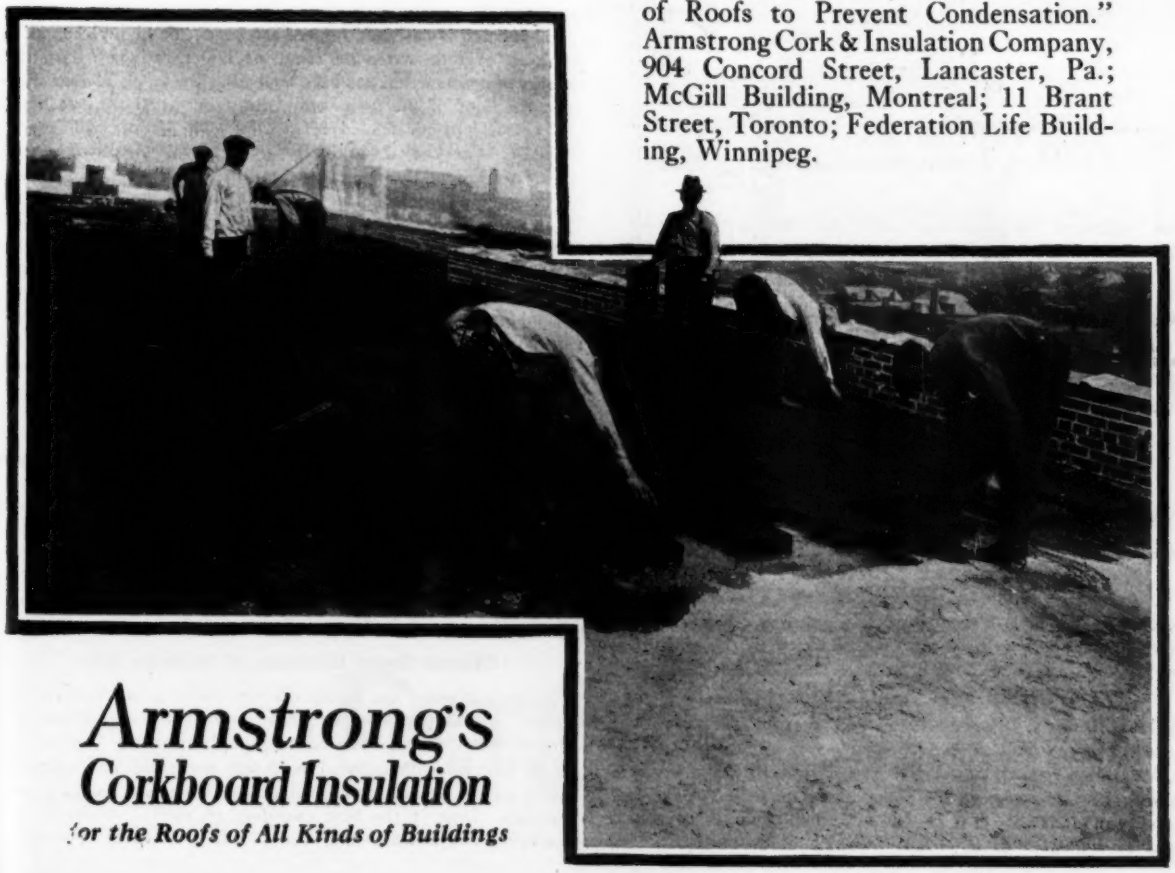
Ⓐ

WHY treat the *effect* when you can cure the *cause*? Insulating the roof with an adequate thickness of Armstrong's Corkboard stops excessive heat leakage and prevents or greatly reduces condensation by keeping the ceiling temperature above the dewpoint. It is direct treatment of the cause of condensation—dependable, practicable, and economical.

Insulation with Armstrong's Corkboard is a remedy you can apply at any time and on any kind of roof, new or old, flat or sloping, wood, concrete or steel. It requires no maintenance. Armstrong's Corkboard is as permanent as the roof deck. It is nonabsorbent, does not buckle or swell, and will not deteriorate in either its structural properties or insulating value.

By keeping ceilings clear of condensed moisture, Armstrong's Corkboard Insulation prevents timber rot and adds years of life to wood roof decks.

Armstrong engineers will gladly submit proposals for the prevention of condensation in your mill. No obligation. Write for the book, "The Insulation of Roofs to Prevent Condensation." Armstrong Cork & Insulation Company, 904 Concord Street, Lancaster, Pa.; McGill Building, Montreal; 11 Brant Street, Toronto; Federation Life Building, Winnipeg.



Armstrong's Corkboard Insulation

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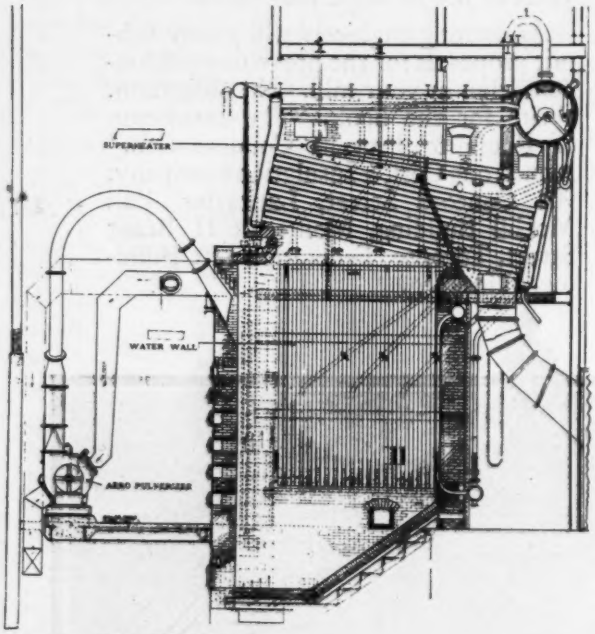
Economizers are not as recent developments as the modern air heater, having been used quite extensively for a century or more, and this may have proved somewhat of a handicap when the economizer was faced with the competition engendered by a more modern heat reclaimer of high merit, the present day air heater. Economizers have been in service for a good many years, however, in some mill plants, giving complete satisfaction and effecting savings in fuel consumption of 10 to 15 per cent per annum. In the old days when fuel was much cheaper than it is now, and the engineering of the mill plants had not attained the high standard it holds today, it was exceedingly difficult to interest a paper mill in any apparatus which did not virtually insure a saving sufficiently large to pay for the installation in two or two and a half years. Such return is just as desirable today, naturally, and as the cost of fuel mounts so does the rate of return on an investment of this character and the more necessary becomes the use of heat reclaiming devices, economizers and air heaters.

In central station practice, in which the conservation of fuel is of the utmost importance, the use of both economizers and some form of air heater is nearly always considered advisable. In fact, the combination of a relatively small economizer and a small air heater is endorsed by the "Prime Mover Committee" of the National Electric Light Association in its last report as being the most economical and efficient steam generator arrangement. The pulp and paper making industries should come to the same conclusion, as apparently have already nine of the mills listed in the table of forty high pressure paper mill plants, but before describing an efficient installation of this character, operating in a small central station, as would seem very desirable, it might be well to describe briefly first the equipment and practices developed in at least one of the newer paper mill plants listed in the statistical table.



Courtesy: Foster Wheeler Corp.

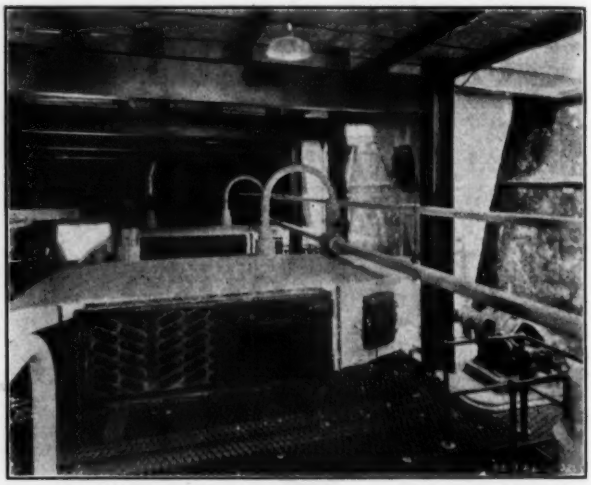
FIG. 2

Arrangement of new steam generating unit at the Milford, N. J., plant of the Warren Mfg. Co. Economizers not shown.

Warren Mfg. Co. Installation

At the Milford, N. J., power plant of the Warren Manufacturing Company, two new boilers of 5,120 square feet of heating surface each have been recently installed. They are fired on pulverized coal, will generate steam at 385 pound pressure with 100 degrees of superheat at 200 per cent of rating, and incorporate advanced practice in a number of important features.

The boilers are of the cross drum type and, on account of space limitations in the boiler room, two pass boilers were selected to operate in combination with economizers. The superheater of each generator is located between the main bank of boiler tubes and the circulating tubes and is of the steel tube type, protected by shrunk on, cast iron rings. In this construction, the extended surface of the rings affords maximum heat absorbing area with a minimum number of joints and the cast iron collars, or rings, protect the tubes from corrosion.



Courtesy: Foster Wheeler Corp.

FIG. 3

Two of three economizers serving a like number of 500 horsepower, water tube boilers in a New England paper mill power plant. Economizers are placed on their sides to conserve space.

The furnace is designed for the attainment of highly economical operation over an extended range of boiler ratings. Bare tube water wall construction has been applied to the side and rear walls, while the floor of the furnace and the front portion of each side wall consists of air cooled refractory. The front wall is solid refractory being cooled sufficiently by an entering supply of secondary air. Incidentally, the cooling of the front wall in this way serves much as would an air heater.

The water cooling of the furnace provides a large heat absorbing surface exposed to radiant heat and at the same time protects the refractory from excessive temperatures. This protection permits the carrying of a high percentage of CO^2 effecting high efficiency in combustion and heat liberation. The air cooling of the floor and the front portion of each side wall also affords a two-fold purpose. The air cooling helps in preventing overheating and also furnishes preheated air for the pulverizer.

While the diagrammatic layout of one of the steam generating units at this plant does not show the installation of the economizers, a view of two of three economizers installed in the plant of a New England paper mill served by three 500-horsepower water tube boilers equipped with radiant heat superheaters is shown. The superheaters, incidentally, cover practically the entire rear wall of the furnace, forming in effect an efficient water back, steam simply replacing the water. The economizers themselves are noteworthy, being arranged in an unusual manner, *i.e.*, placed on their sides in order to conserve space.

Efficient Steam Generator of Moderate Size

Although most of the highly efficient steam generators built to date for central station service have been in units of from 1,000 to 3,000 boiler horsepower each, quite comparable fuel savings may be effected with units of moderate and small size when the smaller boilers are correctly equipped with modern heat recovery apparatus. One of the best examples of such a moderate size installation, one which would seem to afford excellent opportunity

All former standards of speed, quality and economy in the manufacture of tissue and crepe have been upset by the new 178 inch sectionalised drive machine unit recently added to the A.P.W. Paper Company's great paper mill at Albany, New York.

THIS unit of the A.P.W. mill was designed and built by Ferguson Engineers to tie into a far-sighted plan for the ultimate plant development. It includes advanced features for material handling and ventilation and provisions for unusual economy in power and labor costs.

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This is an example of the farsighted planning, construction and equipment service that Ferguson Engineers offer the paper industry. It is a service that centers the entire responsibility for economical and satisfactory results in one reliable organization capable of carrying the entire job through from start to finish.

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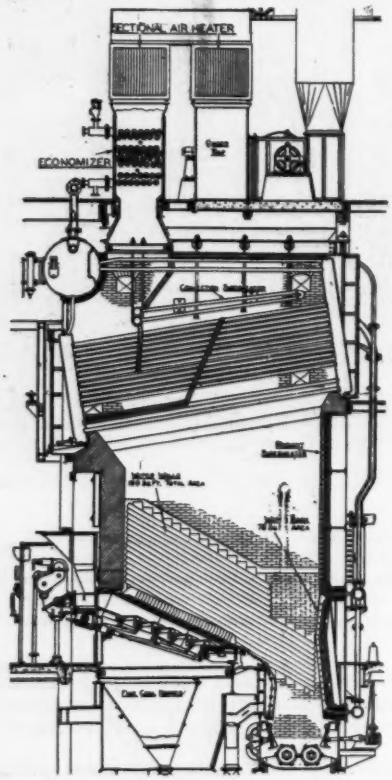
of being adopted to decided advantage to service in many mill plants of average capacity, is built around a boiler of only 485 horsepower rated capacity at the plant of the Iowa-Nebraska Light and Power Company at Norfolk, Neb. It includes water walls, water back, both convection and radiant type superheaters, economizer, air heater, underfeed stoker of somewhat unusual length and a large furnace proportioned to permit of efficient operation at high ratings.

The general arrangement of this efficient steam generator is shown in diagram form, the boiler being of the cross drum, water tube type vertically baffled for three passes, with the entire bottom row of tubes exposed to the radiant heat of the furnace. The walls of the combustion chamber are chiefly of solid refractory, but they contain steam and water cooled panels which reduce the furnace temperature by the absorption of radiant heat and



Courtesy: Foster Wheeler Corp.

FIG. 4.

Steam generating unit at the Norfolk, Neb., plant of the Iowa-Nebraska Light & Power Co.

serve to conserve the refractory portions. The front furnace wall is solid refractory, as are also the side walls except along the stoker zone where water cooled panels are installed. The rear wall of the furnace is composed of a water cooled panel, or water back, and a steam cooled panel, or radiant superheater.

The tube elements of the radiant superheater are arranged so as to carry the steam over three passes across the furnace, the steam entering the radiant superheater being already in a superheated state from first having passed through the convection superheater located above the first and second passes of the boiler. On leaving the radiant superheater, the steam carries about 270 degrees of superheat, which at the working pressure of 425 pounds per square inch means that the final steam temperature is in the neighborhood of 725 degrees Fahrenheit.

The products of combustion after leaving the third pass of the boiler continue upward through an armored, extended surface, type of tube-economizer, the water flowing downward through the economizer, counter-current to the flow of gases, in order to secure maximum heat recovery. The economizer is so proportioned, containing about 27 per cent as much heating surface as the boiler, that the flue gases entering at close to 600 degrees Fahrenheit are cooled to a temperature of about 419 degrees, the water, used for boiler feed, being elevated to a temperature slightly in excess of 180 degrees Fahrenheit.

The gases, still containing considerable reclaimable heat at 419 degrees, then pass through a sectional plate type air heater and give up sufficient heat to raise the temperature of the air supply for combustion from about 80 to 294 degrees Fahrenheit, the products of combustion finally escaping to the stack at a temperature of less than 285 degrees.

Induced and forced draft fans are also included in the equipment complement of this well designed and highly efficient steam generating unit, materially adding to the ease of control and flexibility of the equipment. They have ample capacity to operate the boiler effectively and economically at all loads up to 300 per cent of rating. Altogether, the unit is an outstanding example of the trend toward the employment of both an economizer and small air heater in that ceaseless effort to extract the greatest possible amount of heat from the combustion of fuel in steam generation.

In presenting this discussion on heat reclaiming adjuncts to the steam generating unit, the object has been to show the quite unmistakable trend in boiler plant arrangement, by putting forward the facts regarding a considerable number of the newer and more efficient installations in paper mill power plants in the adoption of quite respectable superheat by a number of the more progressive establishments, in the use of heat reclaiming devices, such as economizers, air heaters, etc., and by brief descriptive comments to focus attention on how certain paper mills and the power industry are capitalizing upon the more recent advance in approved power plant engineering. No attempt has been made to cite specific savings or to enlarge to any extent on on the characteristics of modern types of heat reclaiming devices as was done in previous discussions on steam superheaters and fuel economizers[1]; but rather to show simply what is being done among the plants serving the pulp and paper industries and to indicate in a way how progress and development in the electric central station field may possibly point the way to even greater accomplishments among the power plants serving the pulp and paper mills of the country.

News Print Prices Firm at Helsingfors

WASHINGTON, D. C., July 24, 1929.—News print prices continue firm with some inquiries for 1930 delivery, according to a report from Consul James R. Wilkinson, at Helsingfors, which continues that the thin print market has again been adversely affected as a result of disturbances in China. Offsetting this latter condition, however, are the new orders received from India and Argentina.

The chemical pulp mills report this year's output practically sold out, and sales for 1930 delivery proceeding normally. Most of these orders are from the United States and the United Kingdom. In the mechanical branch of the industry, wet pulp supplies have been sold out and orders are coming in for 1930 delivery. The demand for dry pulp is normal. Prices show no change. The official statistics show a slight increase in exports of these products during the first five months of this year, with the exception of paper, shipments of which show a decline.

Grays Harbor Paper Co. Starts Mill

PORTLAND, Ore., July 26, 1929.—The first run of white paper was produced the week of July 22 by the Grays Harbor Pulp and Paper Company near Aberdeen, Wash. Within a few days it is expected that the pipes will be sufficiently clean to begin the manufacture of high grade bond paper, which will be the main output of the new plant.

[1] See PAPER TRADE JOURNAL, Power Plant Section, for Oct. 27, 1927, and Jan. 3, 1929.

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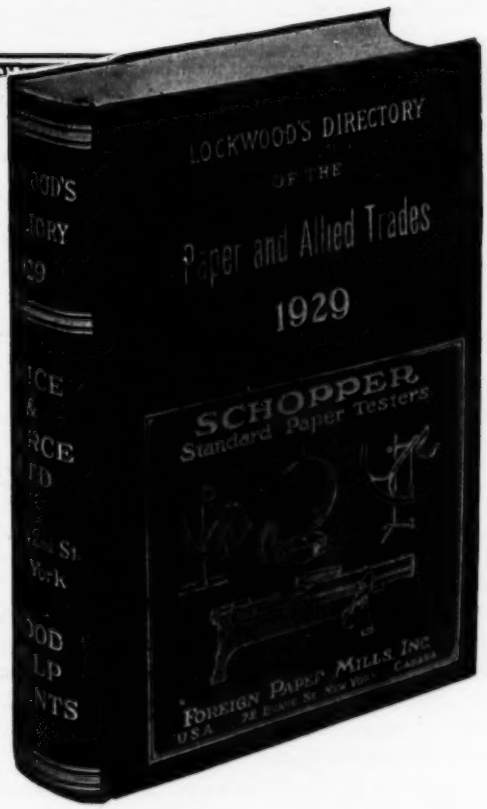

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CANADA'S LUMBER RESOURCES

The Dominion Bureau of Statistics has issued an exhaustive report showing that the latest available estimate places Canada's forest resources at 224,304 million cubic feet of standing timber which is capable of yielding 424,637 million feet board measure of sawn lumber and 1,121,993 thousand cords of pulpwood, ties, poles and other smaller materials. With the population of the Dominion estimated at 9,519,000 in 1927 this represents a per capita supply of 23,564 cubic feet of standing timber to provide an annual per capita consumption for use alone or over 269 cubic feet.

A total depletion of 4,400,000,000 cubic feet per annum does not necessarily imply that our total resources of 224,304,000,000 cubic feet are reduced by that amount every year and that the supply will therefore be exhausted in fifty years. Estimating the probable duration of the supply of forest products is not a matter of simple arithmetic. The rate of utilization is far from constant. It tends to increase with the discovery of new uses for wood, the increase in population and the increase in the demand for forest products from other countries. The rate of destruction from fires and other agencies is also very uncertain but tends to increase with the increase of population and the extension of settlement unless measures are taken to prevent this tendency.

On the other hand there is a steady increase in volume taking place in all healthy stands of timber due to annual growth. By the application of scientific forest management this annual growth can be stimulated and could be made to take place over the entire area of potential forest land. If all the land in Canada which is better suited for the growing of timber than for any other purpose were under intensive forest management on a sustained yield basis it would furnish enough timber and forest products annually in perpetuity to supply the needs of a much larger population with a sufficient surplus for profitable exportation.

There is reason to believe that in time the loss due to forest fires will be practically eliminated once the general public can be made to realize the necessity of precaution, as ninety per cent of forest fires are due to human carelessness. Scientific methods of controlling insect and fungus damage are being rapidly developed and in time the depletion will consist almost entirely of material cut for use.

The use of substitutes for wood may tend to reduce consumption but this is usually exaggerated as a factor in forest conservation. The increasing scarcity of wood will result in increasing prices which will tend to limit consumption. It is now a profitable investment to plant trees in Canada under certain conditions and the planting and management of forest lands will become increasingly profitable as supplies decrease and prices advance, but before this planting and management can possibly result in forest crops sufficient for Canada's needs there will be a period of lean years whose duration and intensity will depend entirely on how soon and how efficiently scientific management is applied to the existing forests.

The final printed report on the lumber industry in Canada for the calendar year 1927 has just been issued by the Forest Products Branch of the Dominion Bureau of Statistics and may be secured on application to Ottawa. The report is not only of interest to the trade but will be found of value to forestry students and those interested in forest conservation. While general statistics concerning the industry have already been issued in a preliminary report the details are made available for the first time.

The report shows a decrease of about two per cent in the total cut of sawn lumber in Canada from 1926 to 1927 with decreases in Ontario, Quebec and New Brunswick and increases in British Columbia and all the other provinces. The exportation of lumber decreased and the importation increased during the same period.

NO SEASONAL BUSINESS DECLINE

Business has passed into the mid-summer season with very little evidence of the recession in activity that is usually witnessed at this time of the year, according to a survey just completed by the Guaranty Trust Company of New York.

"Despite the exceptional levels that have now been maintained for more than six months, and despite the advent of hot weather, the vacation season and the mid-year inventory period, there is little apparent disposition to cut down operating schedules," the survey continues. "As has been true for some time, the most notable activity is reported in the basic industries. Although wholesale and retail trade in general is distinctly good, it makes no such striking comparisons with past records as do most branches of heavy manufacture. Such industrial curtailment as has taken place is, for the most part, purely seasonal in character, and in many branches of business the recession in activity that ordinarily appears at this season is almost entirely absent.

"To all outward appearances, the current level of operation is fully warranted by demand; and the prevailing sentiment among business men has seldom been more thoroughly optimistic. These considerations lend support to the view that any necessary downward adjustment of operating schedules may be deferred for some time. Nevertheless, it is a well known fact that the final consumption of goods, upon which all industrial activity ultimately depends, changes comparatively slowly, and that a sharp upward movement in business activity is invariably followed sooner or later by a corresponding decline. Even in the absence of definite signs of speculative purchasing or of inventory accumulation, it is difficult not to suspect that the conservative buying policies which have been generally followed in recent years at every stage of production and distribution, from the retail dealer to the user of industrial raw materials, have been allowed to relax to some extent.

"It must be admitted that two of the factors which have encouraged forward buying in the past—namely, overtaxed transportation facilities and rising commodity prices—are entirely absent. As long as this remains true, it is not likely that any radically unsound commodity situation will develop. In order to forestall such a situation, however, it will be necessary for some branches of business to moderate their pace.

"Business reports for the first half of the year emphasize the exceptional character of the six months' period through which American industry and trade have just passed. The movement of railway freight was greater than in any corresponding period on record. Bank debits to individual accounts outside of New York City were 7 per cent larger than in the first half of 1928. Retail trade appears to have been consistently more active than a year earlier."

Final Testimony in Eastern Rate Case

[FROM OUR REGULAR CORRESPONDENT]

SYRACUSE, N. Y., July 29, 1929.—Final testimony in the Eastern Class Rate Case in which proposed rates would cost shipping interests in this section about $1,500,000 a year, has been submitted and officials of the local Chamber of Commerce expect a decision to be handed down by the Interstate Commerce Commission before the end of the year. F. M. Varah, of this city, returned this week from Washington, where he represented paper manufacturers of this section at a hearing. Rates proposed in the case by an examiner as substitutes for the present rates have been attacked vigorously by shipping interests and several cities in Central New York are grouped together in fighting the schedules. It was learned that a traffic test was taken to determine as closely as possible the effects of the new rates, if they were established, and it revealed that the total additional cost to Syracuse would be $1,443,226.45, an increase of 19 per cent. The test also showed that taking this city as a point of origin the increase in Central Freight Association territory would be $812,224 or 22.12 per cent. Between Syracuse and points in trunk line territory the additional cost would be $22,531 or 17.47 per cent.

Eastbound rates from Central Freight Association territory to Syracuse would be increased on freight $367,787 annually or 15.96 per cent and the added cost on traffic between the city and New England States would be $40,683 or an 18.25 per cent increase. In a brief filed on behalf of Northern New York shippers by Clark & La Roe, Washington traffic attorneys, it was held establishment of the proposed rates would cost shippers in the official classification territory a total of $50,000,000 a year or more. It was pointed out that on New York Central traffic alone the increase would amount to approximately $20,000,000 a year. The danger to the railroads was indicated by the observation that such increased rates would tend to increase haulage by trucks which already is causing concern.

To Direct Hawley Pulp & Paper Co.

OREGON CITY, Ore., July 26, 1929.—A meeting of the board of directors of the Hawley Pulp & Paper Co., was held on July 11, and the following men were elected to direct the affairs of the company:

Mansel P. Griffiths, of Blyth & Co., president; George W. Houk, former sales manager of Wrenn Paper Company, executive vice president; W. A. Kelly, vice president and general manager; Eric Bernays, of Graham Paper Company and T. Henry Boyd, of Blyth & Co. These men comprise the executive committee.

The Graham Paper Company of St. Louis, will continue as sole selling agents for the company, and their Eric Bernays has been elected to the board of directors of the Hawley Pulp and Paper Company.

To Get Power Rights of Union Bag and Paper Corp.

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., July 29, 1929.—The New York Power and Light Corporation has virtually completed negotiations for taking over the power rights of the Union Bag and Paper Corporation at this place, according to C. S. Ruffner, president. It is understood that plans of the new owners will call for the erection of a new power plant which will cost about $6,000,000 besides many other improvements. Negotiations are now being carried on with the view of purchasing the lands and water rights necessary for the completion of the turnover and it is reported that the amount involved in the purchase and construction will exceed $10,000,000. The sale of the rights which is considered one of the finest power sites in the state has been hanging fire for several months. Two years ago the paper firm was contemplating the construction of a large dam and power house but nothing further developed.

Plans call for the construction of the power house on the Saratoga County side of the Hudson River at Fenimore, near the paper corporation's power plant. Construction of the plant involves the building of a huge dam which will utilize the present head of the Moreau plant and the main plant of the Union Bag and Paper Corporation. The head of water to be developed will be about 80 feet. First development will provide for about 55,000 horsepower with another 20,000 horsepower unit to be added as demands for the power grow in this district. The new project will result in a greater development than that at Spiers Falls which is owned by the New York Power and Light Corporation or the Sherman Island plant of the International Paper Company and the site is said to be one of the best in the state. Complete detailed plans which will be used in the development will be announced as soon as negotiations are fully completed by the two firms involved in the sale of the power rights.

While plans are under way on this development another of a similar kind is under way at Conklingville, where a huge reservoir is being constructed and financed by a number of the largest paper concerns in Northern New York. The New York Power and Light Corporation has started work in that district on a new power plant which is being constructed by the firm of Stevens and Wood, of New York City, and the project will cost in the neighborhood of $750,000. The plant is the first to be constructed in that vicinity in several years and other power projects of an extensive nature are planned in the near future by the several paper mills financing the cost of the Conklingville dam and reservoir.

Leases Ohio Paper Co. Plant

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, July 28, 1929.—It is understood that the American Asphalt Roofing Corporation of East St. Louis, Ill., has leased the plant of the Ohio Paper Company in Miamisburg and will operate it on saturating and deadening felt.

According to the report, D. H. Speecher will be the resident manager and J. A. Ritz will continue as superintendent.

J. P. Furlong, formerly associated with the Logan-Long Company of Franklin, is now in charge of all mills making felt and will supervise the manufacture and will divide his time between the Corporation's different plants. Mr. Furlong's headquarters will be in East St. Louis.

The Ohio Paper Company has a capacity of 20,000 pounds of roofing felt, contains one cylinder machine and three beaters.

Swedish Paper Exports Increase

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 31, 1929.—Exports of paper from Sweden during the first five months of this year have totaled 192,811 metric tons comprising 80,000 tons of news print, 16,838 tons of boards, and 95,970 tons of other classes of paper. The total is an increase of 67,491 tons over last year, when shipments were delayed by labor troubles.

Alum Warehouse, Chattanooga Plant

Alum Warehouse, Erie Plant

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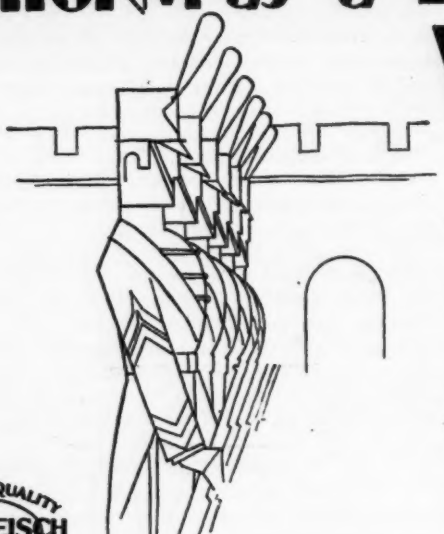

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Edited by
RONALD G. MACDONALD, Secretary

Wolf Sulphur Dioxide Recovery System

In the sulphite process as ordinarily applied the total sulphur dioxide content of the liquor is limited to approximately 4 to 4.5 per cent, of which usually 3 to 4 per cent is free sulphur dioxide The time required for cooking is from 20 to 30 hours if the highest grade of fiber is produced by the indirect or Mitscherlich process. The time can be shortened to from 8 to 12 hours by using a higher temperature during the cooking, as is customary in the direct or quick-cook method. Cooking at high temperature, however, is undesirable because it tends to disintegrate the fiber and introduces serious losses in the operation.

It is true that the cooking time can also be shortened by the use of more concentrated sulphite liquors, that is to say, liquors containing 7 per cent or more of sulphur dioxide. This, however, introduces a further difficulty in recovering the sulphur dioxide at the end of the cooking operation, and unless it is recovered and reused there is a considerable loss. The recovery of sulphur dioxide when cooking with strong sulphite solutions has been employed, but it requires the installation of a large condenser and an acid system, either milk of lime or tower, in which the sulphur dioxide is absorbed.

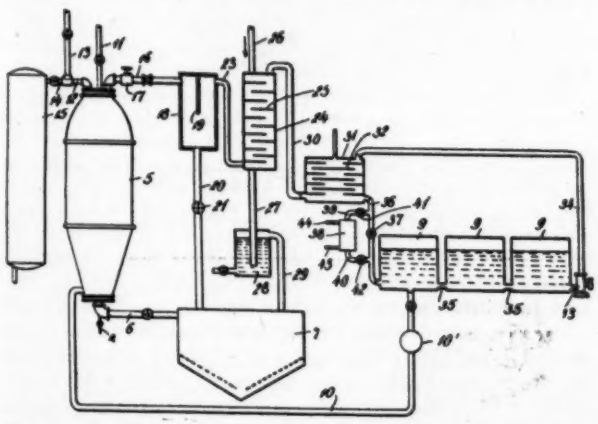
With a view to providing means whereby the sulphur dioxide from the digester can be absorbed in relatively strong sulphite liquor and returned to the digester for the subsequent cooking operation, R. B. Wolf, the well-known sulphite engineer, has devised a system providing for the cyclical use of the sulphur dioxide without recourse to the ordinary acid system, for which he has been granted United States patent 1,699,556, on January 22, 1929. The system is claimed to avoid losses of sulphur dioxide and to permit the cooking of the pulp with strong liquor containing approximately 7 per cent total sulphur dioxide. The cooking can be carried out at low temperature with such a liquor and completed in from 8 to 12 hours, the resulting fiber being practically as strong as that ordinarily produced by the indirect process of cooking.

Principle of the System

In the sulphite process, at the end of the cooking operation and before the pulp is removed from the digester by blowing into the blow-pit, the digester is relieved down to practically atmospheric pressure by permitting the sulphur dioxide to escape from the top of the digester. Usually the relief pipe is screened to prevent entrainment of fiber. This is impractical in the final blowing down because it decreases materially the time required to reduce the pressure in the digester and remove the pulp. The necessity for the screen may be avoided in the Wolf system by the provision of a pulp separator, but this is not essential as the pulp can be separated with the water in a condenser and delivered to the blow-pit. If a separator is used, it also is connected to the blow-pit, so that all of the fiber is recovered eventually and eventually only the gas escapes.

The condenser is provided to remove any water carried from the digester along with the gas, and incidentally to separate fiber, as indicated. In the condenser the gas is subjected to the action of a large volume of cooling water which is maintained at a suitable temperature so that it leaves the condenser at about 200 deg. F. As the gas passes through the condenser, the water vapor which it carries is condensed and joins the cooling water which is delivered through a suitable trap to the blow-pit.

The gas escaping from the condenser, which is substantially free



from water vapor and which consists mainly of sulphur dioxide, is delivered to an absorber in which it comes in contact with a large volume of sulphite liquor which is pumped through the absorber from the acid storage tanks. These tanks may hold, for example, approximately a day's supply or perhaps 300,000 gallons of liquor, containing approximately 7 per cent or more of sulphur dioxide. The time for blowing down the digester is ordinarily about 20 minutes, and during this time the entire volume of sulphite liquor in the tanks may, if desired, be pumped through the absorber. It is practical, without the use of excessive power, to pass approximately 15,000 gallons of sulphite liquor per minute through the absorber during the blowing-down period of a ten-ton digester, and the large volume of solution will absorb readily within the time noted all of the sulphur dioxide coming from the digester. As the average percentage of total sulphur dioxide in the digester at the beginning of the blow-down period will be approximately 1.5 per cent, the absorption of sulphur dioxide will

raise the acid content of the solution approximately 2 per cent, or from 7.0 to 7.14 per cent, thus producing the strong liquor which is used for cooking.

The circulation of the large volume of solution avoids saturation of the acid in the storage tanks and the consequent possible loss of sulphur dioxide. The relatively small amount, if any, of sulphur dioxide which is not absorbed in the sulphite solution can be delivered through a suitable vent to the acid system. The amount of gas to be recovered in this way will always be relatively small because of the effectiveness of the absorber, which is due to the large volume of solution which passes through it.

Under certain conditions, when the atmosphere is relatively warm, it will be desirable to cool the saturated liquor. This can be accomplished readily by the use of surface coolers and the provision of by-pass valves, so that the solution can be passed through the coolers in heat exchange relation with the cooling water.

Description of the Apparatus

In the drawing, (5) is an ordinary sulphite digester connected at the bottom by a valved pipe (6) to a blow-pit (7) and provided with the usual valved pipe (8) for introducing the cooking steam The sulphite liquor may be pumped into the digester from the acid storage tanks (9) through a pipe (10) and (10). A screened and valved pipe (11) is connected to the top of the digester to permit the usual relief during cooking. To facilitate blowing down, a pipe (12) leading to the top of the digester is connected to a valve branch (13) leading to a high-pressure steam main and to a valved branch (14) which may be supplied with compressed air from a tank (15).

A relief pipe (16) with a valve (17) is connected to the top of the digester and to a pulp separator (18), if such a separator is used. The separator may consist of a chamber with one or more baffles (19), and is connected by a pipe (20) controlled by a valve (21) to the blow-pit. The separator removes the liquor and the fiber which are carried over from the digester. These are conducted through the pipe (20) to the blow-pit and mingled with the pulp which is blown from the digester.

The sulphur dioxide escaping from the separator is delivered through a pipe (23) to a condenser (24), consisting of a chamber containing a large number of baffles (25) over which water introduced through a pipe (26) is permitted to flow. The sulphur dioxide enters the bottom of the condenser and passes upwardly through the baffles in contact with the downwardly flowing water. The latter is maintained at the temperature necessary to ensure condensation and consequent separation of the greater portion of the moisture from the gas. The cooling water with the condensed moisture passes through a pipe (27) to a water seal (28). The water seal has an overflow pipe (29) leading to the blow-pit. Any fiber which escapes the separator is washed from the gas by the relatively large volume of cooling water and is carried with it to the blow-pit. Consequently, no fiber can escape from the system, which in this respect is unusually efficient. The condenser is, in fact, so effective in separating fiber from the gas that the separator can be omitted, the gas being relieved directly to the condenser.

The sulphur dioxide which leaves the condenser substantially free from moisture and fiber is delivered by a pipe (30) to the acid absorber (31). This also comprises a chamber with baffles or other suitable surfaces (32), chamber being of suitable size to accommodate the passage of the necessary volume of solution there through within the time required to relieve the digester. The liquor which is withdrawn from one of the acid storage tanks by a large pump (33) is delivered through a pipe (34) to the top of the absorber (31). In order that the required amount of liquor may be passed through the absorber in time indicated and with an installation of the size indicated (a 100-ton mill), about 75 horse-power will be required to drive the pump.

When a number of storage tanks are used, they preferably are connected as indicated in the drawing by pipes (35), and the acid is withdrawn from the most remote tank. As the solution passes through the absorber, it readily takes up the sulphur dioxide and is delivered through a pipe (36) to the nearest tank (9). The solution flows from tank to tank and the arrangement ensures the delivery of the weaker solution to the absorber, and consequently the maximum efficiency in the recovery.

To permit cooking the liquor when necessary, a valve (37) may be disposed in the pipe (36) and a cooler (38) may be connected thereto by pipes (39) and (40) with suitable by-pass valves (41) and (42). When the valve (37) is closed and the valves (41) and (42) are open, the liquor will pass through the cooler (38), which may be supplied with cooling water through a pipe (43), the water escaping through a pipe (44). By controlling the volume of water which is passed through the cooler, the temperature of liquor may be reduced sufficiently to avoid the release of sulphur dioxide when the temperature of the surrounding atmosphere is relatively high.

The absorption of the sulphur dioxide is completed when the digester has been reduced to atmospheric pressure and the liquor in the storage tank has been increased approximately 2 per cent in its sulphur dioxide content. This solution is ready for further use in cooking a fresh charge of chips.—A. P.-C.

Minton Vacuum Drier Installations

After a most thorough investigation and careful analysis of the advantages to be gained through vacuum drying versus the regular standard open drying now in general use on paper machines, the Buckeye Cotton Oil Company, of Memphis, Tenn., a subsidiary of the Proctor and Gamble Company, of Cincinnati, Ohio, has just secured a license from the Minton Vacuum Dryer Corporation, of Greenwich, Conn., to have built by the Black-Clawson Company, Hamilton, Ohio, a Minton vacuum dryer, 128 inches wide, to dry 50 tons per day of cotton linter pulp in sheet form for use in the viscose rayon industry.

The Byron Weston Company, of Dalton, Mass., have also secured a license from the Minton Vacuum Dryer Corporation to have built by Rice, Barton & Fales, of Worcester, Mass., a Minton vacuum dryer 110 inches wide for the drying of surface sized 100 per cent rag bond and ledger stocks.

These two vacuum dryers complete a total of ten dryers that have been designed and licensed by the Minton Vacuum Dryer Corporation within the past three years.

Six of the machines are now in operation and the remaining four will be put in operation before the end of the current year.

The products dried under a vacuum will include burlap, bakelite board, news print, tissue and toweling, fine writing paper, bleached kraft pulp, and cotton linter pulp in sheet form.

Durability of Paper

Causes and Prevention of Deterioration in Book Materials. Robert P. Walton. New York, The New York Public Library, 1929. 39 p. 15 cents.

This pamphlet is an annotated bibliography of the preservation and durability of book paper, p. 6-21; deterioration of bookbinding leathers, p. 21-32; leather preservative compositions, p. 32-35; determination of acidity in leath, p. 35-36; author index, p. 37-39. The entries are arranged chronologically. It is interesting to note that the first entry is dated about 60 A. D. and is taken from Plinius Secundus' *Naturalis historia;* comment is made on the preservation of papyrus for 535 years. The second entry is dated 1887, in which Martens states that a great part of the works of this period are in eminent danger of extinction because of the rapid disintegration of the paper on which they are printed. The same thought is emphasized in the introduction, where Walton says: "As indicated in the following compendium, all of our present literature is confronted with the possibility of complete extinction within a spectacularly short period.

While the work is prepared primarily for libraries and similar institutions, it should prove of value to the many people now interested in the question of the durability of paper.—C. J. West.

Pulping Flax Straw*

VI—Properties of Flax Straw Cellulose and Its Value in the Cellulose Industries

By Earl R. Schafer and Mark W. Bray[1]

The increasing demands of industry for raw materials for the production of cellulose products is prompting the inquiry into the possible utilization of other fibrous materials in addition to wood. Industry has at times gone far afield for its raw material and a consideration of the luxuriant growth of the wild plants in tropical regions as a source of cellulose should not be ignored. The importance, however, of first utilizing the agricultural wastes occurring at our very doors is apparent. One phase of this agricultural waste problem is the utilization of flax straw. This paper deals with some of the properties of flax cellulose industries. Other papers from the United States Forest Products Laboratory on flax straw are:

"A Study of Flax Straw for Paper Making," by John D. Rue, Sidney D. Wells, and Earl R. Schafer.[2]

"Chemical Constituents of Flax Straw," by Sidney D. Wells and Earl R. Shafer.[3]

"Pulping Flax Straw: I—Hydrolysis with Sodium Sulfite," by Mark W. Bray and Clifford E. Peterson;[4] "II—Chemical Studies with Chlorine as a Pulping Agent," by Earl R. Schafer, Mark W. Bray, and Clifford E. Peterson;[5] "III—Hydrolysis and Delignification with Sodium Hydroxide mixed with a Mixture of Sodium Hydroxide and Sodium Sulfite, by Mark W. Bray and Clifford E. Peterson;[6] "IV—Further Studies on Hydrolysis and Delignification with Alkaline Reagents," by Earl R. Schafer and Clifford E. Peterson;[7] "V—Production of Pulp by the Chlorine Process," by Earl R. Schafer and Clifford E. Peterson;[8] "VII—Strawboard and Insulating Board," by Earl R. Schafer and Clifford E. Peterson.[9]

Flax straw is obtained as a by-product or waste in the production of flax seed. The principal areas under cultivation in this country lie in the northwestern states, 97 per cent of the seed production being from Minnesota, the Dakotas, and Montana. In 1927, 2,654,000 acres were devoted to flax culture and the production of seed was approximately 24,400,000 bushels. The amount of straw produced is estimated to vary from one to one-sixth of a ton per acre depending on the locality and prevailing weather conditions. Three-quarters of a ton per acre is considered a good average. Nearly all of this annual production of 2 million tons of straw is burned. Only about 200,000 tons are used in the manufacture of upholstery tow and of insulating materials.

The varieties of flax grown for seed purposes are those which produce seed of high oil content. The seed is thinly sown for the maximum production of branches and consequently of seed. The seed variety of flax is botanically the same as that grown for fiber. The difference between the two lies only in the strains selected and the methods of cultivation.

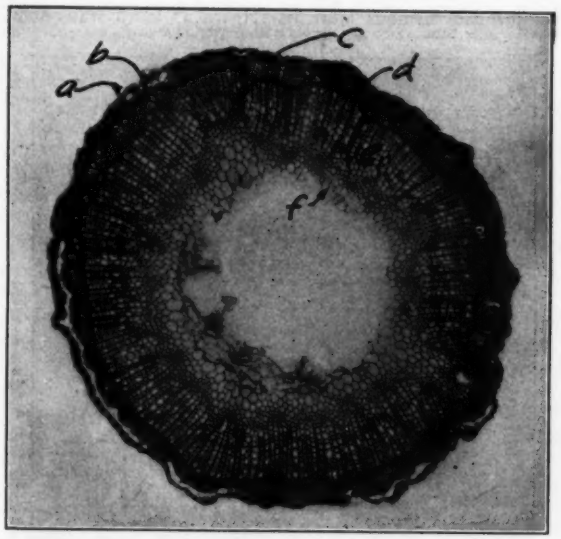


FIG. 1

Flax Stem (Linum usitatisimum) Transverse Section. × 35
a—Cuticular layer; b—Cortical parenchyma; c—Bast fibers in bundles; d—Cambium layer; e—Central hollow woody core; f—Pith cells.

Composition of Seed Flax Straw

Flax straw when received in the bale, in addition to the flax stalk, consists of about 30 per cent of chaff, leaves, seed pods, weeds, and grass. Figs. 1 and 2 are cross sections of the flax stalk showing the following structure: (*a*) a layer of cuticular cells; (*b*) a layer of cortical parenchyma; (*c*) the bast fibers in groups or bundles; (*d*) the cambium layer; and (*e*) the central hollow wooden core. The parts which contain cellulose fibers are the bast layer (*c*) and the central core (*e*). These parts compose about 90 per cent of the stalk.

* Presented under the title "Cellulose from Flax Straw" before the Division of Cellulose Chemistry at the 76th Meeting of the American Chemical Society, Swampscott, Mass., September 10 to 14, 1928.

[1] U. S. Forest Products Laboratory, Madison, Wis.

[2] Rue, Wells, and Schafer, Paper Trade J., 79, No. 13, 45 (1924); Pulp Paper Mag. Can., 22, 1068, 1087 (1924).

[3] Wells and Schafer, Paper Trade J., 80, No. 17, 47 (1925); Paper Ind., 7, 239 (1925).

[4] Bray and Peterson, Ind. Eng. Chem., 19, 371 (1927); Paper Trade J., 84, No. 23, 317 (1927).

[5] Schafer, Bray, and Peterson, Paper Trade J., 84, No. 8, 207 (1927); Pulp Paper Mag. Can., 25, 209 (1927).

[6] Bray and Peterson, Paper Trade J., 86, No. 3, 48 (1928); Pulp Paper Mag. Can., 26, 37 (1928).

[7] Schafer and Peterson, Paper Trade J., 86, No. 3, 51 (1928); Pulp Paper Mag. Can., 26, 477 (1928).

[8] Schafer and Peterson, Paper Trade J., 87, No. 16, 41 (1928); Pulp Paper Mag. Can., 26, 1588 (1928).

[9] Schafer and Peterson, to be published.

TABLE 1—CHEMICAL COMPOSITION OF SEED FLAX STRAW AND ITS PRINCIPAL COMPONENTS[a]

Material	Solubility			Lignin	Cellulose Total	Pentosans			Copper Number	Ash
						Total	In cellulose			
	In alcohol-benzene	In hot water	In 1% caustic soda soln.				Based on cellulose content	a		
	%	%	%	%	%	%	%	%	%	%
Seed flax straw	3.3	12.1	33.7	23.3	53.8	17.1	13.1	7.0	8.0	3.6
	3.7	9.9	32.1	24.2	51.3	19.4	16.0	8.2	..	6.0
Bast fiber of seed flax	2.3	11.1	29.2	10.1	71.9	6.0	3.4	2.4	..	4.7
Shives from seed flax	6.5	5.1	24.2	27.9	57.0	25.6	20.1	11.4	..	3.5

[a] All quantities except those indicated are based on the oven-dry weight of material analyzed.

The bast fiber is a long filament extending the length of the stem, the ultimate fiber of which varies from 30 to 45 mm. in length and from 0.030 to 0.025 mm. in diameter. The fiber in the woody core, however, has a ratio of length to width of about 1 to 18 and, in comparison with that of the bast fiber, is very short. Figure 3 is a disintegrated flax stem and shows relatively the lengths of the bast and wood fibers.

The woody core, when broken into small pieces and separated along with the other non-cellulosic material from the bast fiber, is called shives. The proportion of bast fiber in the entire straw varies from 15 to 20 per cent and that of the woody fiber from 70 to 75 per cent.

The chemical composition of the straw and its two main components is given in Table I.[5,6] Fatty and waxy materials, as shown by the material soluble in alcohol-benzene mixture, occur in the shives to a larger extent than in the bast. On the other hand, the bast contains more than twice as much water-soluble material as the shives. The material soluble in 1 per cent caustic soda solution is also somewhat higher in the bast than in the shives. Though the bast fiber is not considered as a lignified fiber, about 10 per cent of it has been isolated[3,4] from the unretted fiber as lignin. The shives are highly lignified and exhibit chemically the properties of hardwood. The shives also contain large amounts of pentosans or furfural-yielding substances, which occur only to a small extent in the bast fiber.

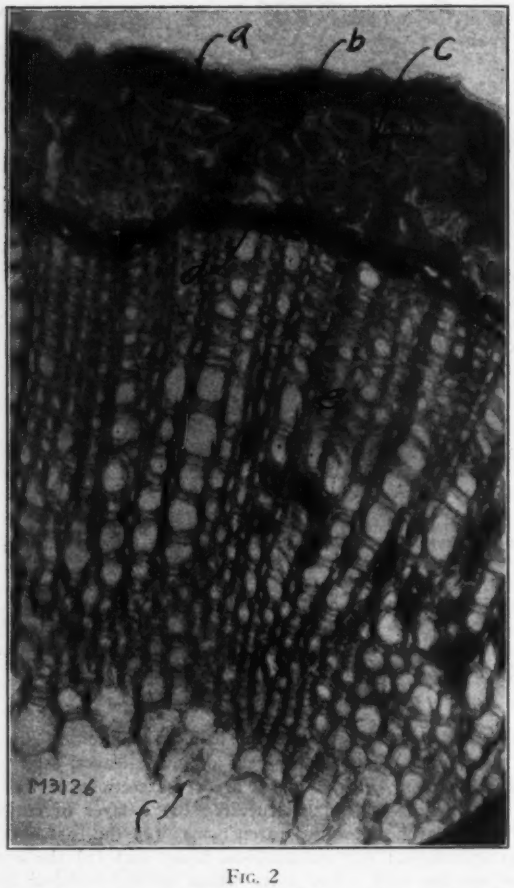


FIG. 2

Flax Stem (Linum usitatisimum). Disintegrated. × About 63
a—Cuticular layer; b—Cortical parachyma; c—Bast fibers in bundles; d—Cambium layer; e—Central hollow woody core; f—Pith cells.

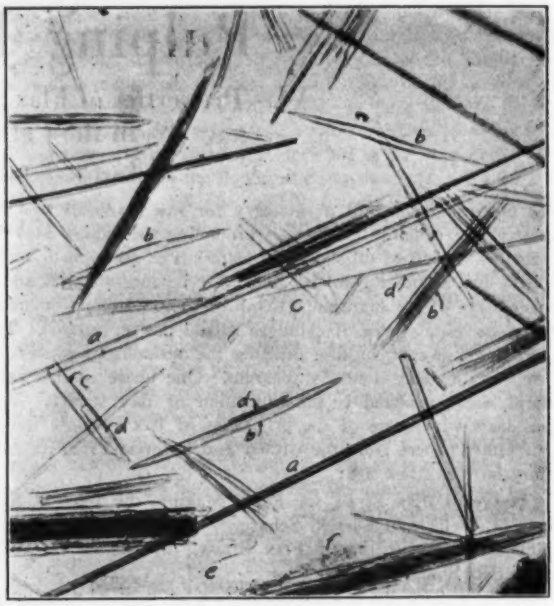


FIG. 3

Flax Stem (Linum usitatisimum) Transverse Section. × 225
a—Bast fibers; b—Wood cells; c—Vessel; d—Parenchyma cell; e—Pith cells; f—Cuticular cells.

Considered as to chemical constitution, the differences between the bast and the shives are as great as their physical dissimilarities. The bast fiber consists of relatively pure cellulose associated with other materials that are very easily removed by organic solvents and dilute alkaline solutions. The lignin and pentosans in the shives, on the other hand, are closely combined with a relatively smaller quantity of cellulose and in practically the same proportions as are found in hardwoods such as sugar maple.

Composition of Pulps Prepared from Flax Straw

The analysis of several pulps prepared from the bast fiber and the entire straw is shown in Table II. These have been selected, not in regard to their paper-making quality or to any economy in their production, but as pulps of a fairly high degree of purity containing relatively high percentages of cellulose.

Sample 564 was prepared from the bast fiber which had been separated from the shives by textile methods—namely, retting, scutching, and carding. The fiber was cooked with lime for the production of a high grade linen paper. The analysis given here is of the cooked fiber prior to bleaching. The pulps represented

TABLE 2—CHEMICAL COMPOSITION OF PULPS PREPARED FROM SEED FLAX STRAW AND BAST FIBER[a]

Sample	Kind of Pulp	Soluble in 1% caustic soda soln.	Lignin	Cellulose		Pentosans			Copper Number	Yield of pulp based on straw
							In cellulose			
				Total	Alpha	Total	Based on cellulose	Based on pulp		
		%	%	%	%	%	%	%	%	%
564	Bast fiber cooked with lime unbleached	...	4.5	89.8	80.3[b]	2.5	1.9	1.7	1.2	..[d]
365	Flax straw, cooked mildly with caustic soda, finished with large amount of chlorine water	12.7	2.7	97.0	82.4[c]	10.9	10.1	9.8	4.0	33.8
364	Flax straw, cooked moderately severely with caustic soda, finished with small amount of chlorine water	11.3	2.8	97.7	78.2[c]	11.8	10.9	10.6	3.9	31.3
378	Flax straw, well cooked with caustic soda unbleached	4.9	11.7	98.5	82.5[c]	14.0	14.7	13.2	5.2	48.8
381	Flax straw, well cooked by sulphate process unbleached	3.8	4.9	93.8	82.6[c]	14.3	13.4	12.6	2.3	45.0

[a] All quantities except those indicated are based on oven-dry weight of pulp.
[b] Determined on cellulose, not corrected for pentosans.
[c] Determined on pulp, not corrected for lignin or pentosans.
[d] The yield of unbleached pulp based on fiber cooked was 84.0 per cent.

by samples 365 and 364 were prepared by digesting the entire straw with caustic soda under mild and moderately severe conditions, respectively. After the alkaline digestions the pulps were treated alternately with solutions of chlorine water and sodium sulfite until bleached. The method of treatment is described in detail in a previous publication[5]. The conditions under which samples 378 and 381 were pulped are reported in the third article of this series.[6] These samples were prepared, respectively, from the entire straw by the soda and sulfate processes. The digestions were under equal conditions of time, temperature, and total available alkali expressed as caustic soda. The difference in the conditions in obtaining samples 378 and 381 was that a portion of the sodium hydroxide present in 378 was replaced by such a quantity of sodium sulfide in 381 that the total available alkalinities of the cooking liquors were equal. The ratio of caustic soda to sodium sulfide in the sulfate digestion was 4 to 1. The data showing the analyses of the pulps just described were obtained from the unbleached pulps.

Samples 365 and 364, which were analyzed after the treatment with chlorine water subsequent to pulping, show a higher cellulose content in comparison with the soda, sulfate, and lime-cooked pulps. This is because the reaction was carried on until the pulp was bleached. It may be noticed that the two chlorinated pulps, although produced with widely different amounts of chlorine, are nearly identical in chemical properties. This illustrates the flexibility of conditions possible in the chlorine process without greatly changing the chemical properties of the pulp. The solubility of the chlorinated pulps in 1 per cent caustic soda solution is higher, the pentosans lower, and the alpha-cellulose about equal to the pulps obtained from the straight soda and sulfate digestions.

Note.—The two chlorine processes have been developed principally in France and Italy. The de Vains process (French) employs the chlorine in water solution, whereas the Cataldi or Pomilio process (Italian) employs gaseous chlorine. A number of articles have been published and the reader is referred to "Chemical Abstracts and Bibliographies on Paper Making," published in Technical Association Papers of the Technical Association of the Pulp and Paper Industry 1923-1928. The particular point mentioned above is discussed by Consiglio, Papier-Fabr., 24, No. 50, 785 (1926); Papier, 28, 1291 (1925).

More cellulose and less lignin are found in the pulps by the sulfate method of cooking than was found when the straw was pulped by the soda method. The alpha-cellulose and pentosans are, respectively, about equal in the two pulps. However, the copper number of the soda pulp is more than twice that of the sulfate pulp.

Relation of Cellulose to Pulp

Although this paper has pointed out primarily the various chemical characteristics of flax pulps obtained by different methods of cooking, it is also of interest to note the relation of the yield of cellulose to that of pulp. In sample 364 a high yield of pulp—namely, 84 per cent—was obtained by cooking the bast fiber with lime. The amount of straw required to produce the raw bast fiber is not known, but undoubtedly was more than five times the weight of the crude fiber secured. In consideration of this fact it may be concluded that this material yielded much less cellulose on the basis of the straw processed than was obtained by pulping the entire straw. Against this is a consideration of the possibility of economically processing the shives separately for the production of cellulose of suitable commercial quality. Work on this part of the problem is now under way. Of the pulps prepared from the entire straw, the highest yield of pulp and, therefore, the highest yield of alpha-cellulose, was secured from the soda digestion designated sample 378.

Conclusion

The pulps discussed in this paper were prepared primarily to determine their value as paper-making material. Their value in other cellulose-using industries has not been demonstrated. The copper numbers and lignin contents are higher and the alpha-cellulose contents lower than for pulps ordinarily used in the nitrocellulose and viscose industries. Further purification would undoubtedly yield pulps which could be used for the production of these products.

International Burr Corp. Gets Decision

WATERTOWN, N. Y., July 29, 1929.—After a spirited litigation extending over seven years on an allegation of infringement of patents, decision has just been handed down by the court of appeals favoring the International Burr Corporation, of this city, in a suit commenced August 22, 1922, by the Wood Grinding Service, Inc.

The Wood Grinding Service, Inc., a local concern, charged the International Burr Corporation with violating patent rights. After the complaint was filed, the defendant was required to post a bond pending the suit.

Manufacturing of the wood grinding burrs by the International Burr corporation was not prohibited during the litigation, and the local firm enjoyed a large volume of business.

When the case was tried in Federal court before Judge Frank Cooper, decision was in favor of the Wood Grinding Service, Inc. This decision was given in December, 1927, and was appealed by the International Burr Corporation to the district court of appeals.

The complaint charged that the International Burr Corporation was infringing upon patents granted to the Hall Corporation, of this city, the rights being granted on March 16, 1915 and relating to the fibrating of logs to produce mechanical pulp. The Hall Process Corporation was later named the Wood Grinding Service, Inc.

The International Burr Corporation consistently maintained that there was no infringement of patents and that it had a legal right to manufacture the burrs and create an enlarged market.

Spear, Middleton, Donaldson & Hall, of Washington, represented the International Burr Corporation. The legal concern is well known throughout the United States in patent litigations. Attorney Charles A. Phelps was local counsel for the International Burr Corporation.

The Wood Grinding Service, Inc., was represented by Parsons, Brocknow & Beane, of Buffalo, and Cobb, Cosgrove, Harter & Wright was local attorney. Attorney Delos M. Cosgrove had charge of the case here.

William P. Aikin is president of the International Burr Corporation; N. E. Aikin, vice president; C. B. Aikin, treasurer; and F. W. Aikin secretary. The plant is located at 500 Newall street, and has been in business more than 15 years.

Wallboard to be Made in Saskatchewan, Canada

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 31, 1929.—A company has been organized in Regina for the purpose of exercising the Canadian rights to the manufacture of solomite, a wall board made of straw compressed under a pressure of 100 pounds to the square inch, bound with wire, and made up into boards of any length desired, Trade Commissioner J. Bartlett Richards, Winnipeg, reports to the Department of Commerce.

This board is understood to have been introduced in France and Belgium, where it is claimed it has demonstrated excellent insulating properties and has been accepted by fire insurance companies as a first class risk.

The Regina company will be controlled by a parent company in Belgium, in which Canadian investors are being offered a share interest amounting to $50,000. The company has been granted the manufacturing and sales rights for the whole of Canada. The directors of the Canadian subsidiary are all business men of Regina.

Chauncey E. Cole Goes to Harriman

HARRIMAN, Tenn., July 29, 1929.—Chauncey E. Cole, formerly superintendent of the Crescentville Mill of the Fox Paper Company, Lockland, Ohio, is now superintendent of the new mill of the Harriman Company, here.

United States Patents on Paper Making

Second Quarter, 1929

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography

APRIL 2, 1929

1,707,333. Method of and apparatus for manufacturing paper. John Traquair, assignor to The Mead Pulp and Paper Company, Dayton, Ohio. Filed June 14, 1926. 14 claims (Cl. 92—39.) Method of forming a web.

1,707,375. Machine for making sheets and boards. Charles A. Upson, assignor to The Upson Company, Rochester, N. Y. Filed Oct. 15, 1926. 7 claims. (Cl. 92—39.) Combination of compression chamber, a feeding throat and means for violently agitating and mixing the material during the passage from one to the other.

1,707,376. Means for maintaining a given speed of driven-machine shafts, particularly of paper-making machines. Walter Vogel, assignor to the Firm Aktiengesellschaft der Maschinenfabriken Escher Wyss and Cie, Zurich, Switzerland. Filed Mar. 29, 1928. 5 claims. (Cl. 92—38.)

1,707,429. Method of and apparatus for forming articles from pulp. Merle P. Chaplin, assignor to Fidelity Trust Company, Portland, Me. Filed Feb. 7, 1927. 10 claims. (Cl. 92—56). Continuous method of forming a series of interfelted, laminated pulp articles.

1,707,430. Pulp-molding machine and method of forming molded pulp articles. Merle P. Chaplin, assignor to Fidelity Trust Company, Portland, Me. Filed Feb. 7, 1927. 9 claims. (Cl. 92—56.)

1,707,491. Production of building felt. Ray P. Perry, assignor to The Barrett Company. Filed Apr. 7, 1922. 22 claims. (Cl. 92—21.) Produced from paper-making stock and an emulsion containing waterproofing material and steatite.

1,707,528. Paper pail and handle therefor. Leon E. La Bombard and Melvin H. Sidebotham, assignors to Specialty Automatic Machine Company, Chelsea, Mass. Filed ???? 19, 1927. 8 claims. (Cl. 229—52.)

1,707,555. Apparatus for grinding corrugated rolls and bedplates. Robert B. Jones, assignor to Jones Brothers Company, Boston, Mass. Filed Mar. 23, 1926. 2 claims. (Cl. 51—26.)

1,707,580. Machine for interfolding sheets. Glenn A. Shaffer and Franklin H. Wirtz, Green Bay, Wis. Filed Nov. 7, 1927. 23 claims. (Cl. 270—39.)

1,707,581. Package of interfolded sheets. Glenn A. Shaffer, assignor to Fort Howard Paper Company, Green Bay, Wis. Filed Nov. 7, 1927. 2 claims. (Cl. 206—57.)

1,707,604. Deinking paper. Harry C. Fisher, assignor to The Richardson Company, Lockland, Ohio. Filed Sept. 28, 1927. 11 claims. (Cl. 92—3.)

1,707,680. Paper box. Harry G. Norwood, assignor to Sidney O. Boartfield, Baltimore, Md. Filed Dec. 23, 1925. 1 claim. (Cl. 229—36.)

1,707,788. Collapsible paper shipping basket. Leo D. Felten, St. Paul, Minn. Filed Oct. 25, 1926. 2 claims. (Cl. 229—16.)

1,707,966. Paper stock density regulator. Fred B. Wells, assignor to The Ohio Boxboard Company, Cleveland, Ohio. Filed Sept. 22, 1926. 3 claims. (Cl. 92—46.)

APRIL 9, 1929

1,708,073. Method and mechanism for determining the moisture content of paper or other materials. Albert Allen, assignor to Atlantic Precision Instrument Company, Boston, Mass. Filed May 1, 1925. 54 claims. (Cl. 177—351.) Use of oscillatory electric current.

1,708,074. Indicating and controlling method and mechanism for paper-making machines and the like. Albert Allen, assignor to Atlantic Precision Instrument Company, Boston, Mass. | Filed May 1, 1925. 42 claims. (Cl. 92—38.) Method of determining the weight per unit of area of sheet material.

1,708,094. Pressure sulphur burner. Henry Howard, assignor to The Grasselli Chemical Company, Cleveland, Ohio. Filed Mar. 21, 1927. 3 claims. (Cl. 23—278.)

1,708,111. Fiber composition and method of making the same. Harlan L. Trumbull, assignor to The B. F. Goodrich Company, New York, N. Y. Filed Aug. 25, 1924. 8 claims. (Cl. 92—21.) Combination of fiber and derivative of rubber.

1,708,270. Sectional paper-machine drive. Charles L. Henderson, assignor to Paper Patents Company, Neenah, Wis. Filed Dec. 20, 1926. 10 claims. (Cl. 74—34.)

1,708,434. Paper making. Charles A. Tifft, Holyoke, Mass. Filed Aug. 1, 1924. 10 claims. (Cl. 92—20.) Connection of Jordan to paper machine.

1,708,586. Process for the treatment of fibers. Arthur E. Millington, Chacigo, Ill. Filed Aug. 18, 1926. 3 claims. (Cl. 92—3). Waste wood products for building boards.

1,708,724. Method of and apparatus for forming a web in paper making. Anton J. Haug, Nashua, N. H. Filed July 14, 1922. 34 claims. (Cl 92—38). Cylinder machine.

1,708,812. Treating or retting fiber-bearing plants. Martin Waddell and Henry Cowan Watson, assignors to Watson-Waddell Limited, Belfast, Ireland. Filed Oct. 31, 1927. 4 claims. (Cl. 92—3). Process for retting flax.

1,708,828. Apparatus for and method of bottoming paper bottles and the like. William H. Bremmerman, assignor to Oswego Falls Corporation, Fulton, N. Y. Original application filed Mar. 14, 1924; divided and this application filed June 6, 1928. 9 claims. (Cl. 93—39).

1,708,926. Paper and process of making the same. Lester Kirschbraun and Albert L. Clapp; said Clapp assignor to The Flintkote Company, Boston, Mass. Filed Feb. 7, 1921; renewed Sept. 24, 1925. 26 claims. (Cl. 92—21). Method of treating fibrous stock with a bituminous pitch type base.

1,708,927. Waterproofing material and process of making the same. Lester Kirschbraun, Chicago, Ill. Filed Apr. 14, 1921; renewed Oct. 28, 1926. 14 claims. (Cl. 92—21). Bituminous material.

APRIL 16, 1929

1,709,026. Paper-making machinery. Herman L. Kutter, assignor to The Black-Clawson Company, Hamilton, Ohio. Filed May 1, 1925. 9 claims. (Cl. 92—43). Cylinder for treating wood pulp, paper stock or the like.

1,709,112. Paper-making machine. Adam E. Bridge, assignor to The Black-Clawson Company, Hamilton, Ohio. Filed May 3, 1928. 3 claims. (Cl. 92—22). Beater roll.

1,709,126. Window envelope. Marino Gentile, assignor of one-half to Samuel W. Weis, Chicago, Ill. Filed Mar. 26, 1928. 3 claims. (Cl. 229—71).

1,709,133. Means for preparing pulp in paper making. Fay Kerr, and Max Zimmerman, Averyville, Ill., and Lockport, N. Y. Filed May 31, 1928. 12 claims. (Cl. 92—20). Paper stock shredder.

1,709,246. Rotor-end guard for pulp beaters and the like. John Brownell Buehler, assignor to Container Corporation of America, Chicago, Ill. Filed Feb. 16, 1928. 10 claims. (Cl. 92—24).

1,709,296. Driving device for paper machines. Fritz Wyss, assignor to the Firm Aktiengesellschaft der Machinenfabriken Escher Wyss and Cie, Zurich, Switzerland. Filed Sept. 15, 1927. 7 claims. (Cl. 92—38).

1,709,322. Wood fiber for high-grade paper and derivative manufacture. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Nov. 7, 1924. 3 claims. (Cl. 92—3). A high alpha cellulose product.

1,709,338. Pulp-molding machine. Merle P. Chaplin; assignor to Fidelity Trust Company, Portland, Me. Filed Oct. 11, 1926. 18 claims. (Cl. 92—56).

1,709, 475. Wall board. Gilbert A. Hoggatt, assignor to Certainteed Products Corporation, New York, N. Y. Filed Nov. 9, 1928. 14 claims. (Cl. 154—1).

1,709,511. Paper hood cap and production thereof. Wilbur L. Wright, assignor to Oswego Falls Corporation, Fulton, N. Y. Filed Sept. 2, 1927. 14 claims. (Cl. 215—38).

1,709,754. Rails for Fourdrinier paper-making machines. Albert H. Standley and George D. Kilberry, assignors to Beloit Iron Works, Beloit, Wis. Filed June 18, 1927. 8 claims. (Cl. 92—44).

1,709,760. Paper-making machine. Sydney Carrol Wentz, assignor to Paper Machinery Corporation, Dayton, Ohio. Filed Apr. 12, 1926. 6 claims. (Cl. 92—44). Deckle frame.

1,709,824. Method of manufacture of cellulose. Horace Walker, Leeds, England. Filed Aug. 12, 1926. 2 claims. (Cl. 92—3). Use of stems, roots. tops, etc. of plants of the family of Solanaceæ.

APRIL 23, 1929

1,709,892. Method of using sodium silicate adhesives. Charles D. Wood, assignor to The Grasselli Chemical Company, Cleveland, Ohio. Filed July 21, 1916. 2 claims. (Cl. 154-40). Use in making a composite board.

1,709,934. Method for making corrugated board. Harry A. Cumfer, Chicago, Ill. Filed Aug. 16, 1926. 6 claims. Cl. 154—33).

1,709,969. Color-depositing apparatus for paper-making machines. Charles G. Bright, assignor to Paper Patents Company, Neenah, Wis. Filed Oct. 7, 1926. 14 claims. Cl. 92—40).

1,710,246. Paper-cup machine. Charles F. Smith, assignor to Public Service Cup Company, Brooklyn, N. Y. Filed July 7, 1927. 16 claims. (Cl. 93—60).

1,710,272. Recovery of valuable products from spent sulphite liquors. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Jan. 6, 1927. 14 claims. (Cl. 71—9). Fertilizer.

1,710,320. Construction material. Ray P. Perry, assignor to The Barrett Company. Filed Jan. 19, 1921. 5 claims. (Cl. 92—67). 30 per cent asbestos fibers felted together and 70 per cent bituminous material.

1,710,375. Method and apparatus for making paper. Gaston Amedee Mouriaque, Paris,, France. Filed Oct, 4, 1927. 10 claims. (Cl. 92—7). Vegetable matter is treated with ozone, then with extract of wood ashes and quicklime.

APRIL 30, 1929

1,710,706. Means for seasoning paper. George Edward Maxner, West End, N. J. Filed Dec. 1, 1927. 2 claims. (Cl. 271-26). Use of heated dry air.

1,710,752. Wood-pulp material. Joseph H. Wallace, assignor to Pine Waste Products, Inc., New York, N. Y. Filed July 29, 1925. 5 claims. (Cl. 92—2). Pulp mill chips of coniferous wood containing a substantial proportion of the entire resinous content of said wood.

1,710,,914. Process of treating hemp waste. Channing C. Beeth, Duluth, Minn. Filed Jan. 23, 1928. 5 claims. (Cl. 92—14). The hemp waste in sodium hydroxide solution is heated with live steam.

1,710,915. Reenforced plaster wall board. Charles R. Birdsey, assignor to United States Gypsum Company, Chicago, Ill. Filed Jan. 13, 1921; divided and this application filed Apr. 19, 1922. 7 claims. (Cl. 154—45.9).

MAY 7, 1929

1,711,584. Process for the production of chemical wood pulp. Donald B. Bradner, assignor to The Champion Coated Paper Co., Hamilton, Ohio. Filed Jan. 24, 1927. 6 claims. (Cl. 92—9). Method for forming high alpha cellulose pulp and using the resulting liquor for sulphate pulp.

1,711,643. Method and apparatus for impregnating paper tubes or other porous articles. Norman Marshall, assignor to Remington Arms Company, Inc. Filed Feb. 26, 1924. 8 claims. (Cl. 91—46).

1,711,706. Method of making wood pulp. Howard F. Weiss, assignor to the Bauer Brothers Company, Springfield, Ohio. Filed Nov. 3, 1924. 5 claims. (Cl. 92—6). The material is impregnated with water by saturation and then rolled and crushed in the presence of water.

1,711,823. Folded paper box. Lawrence Edwin Arneson, assignor to Morris Paper Mills, Chicago, Ill. Filed Nov. 22, 1926. 3 claims. (Cl. 229—34).

1,711,953. Patterned paper and method of making the same. Elsmore D. Lake, Oakland, Calif. Filed Apr. 26, 1926. 4 claims. (Cl. 91—67.9).

1,711,991. Paper box. Elie W. Labombarde, Nashua, N. H. Filed Dec. 30, 1925. 1 claim. (Cl. 229-35).

1,711,992. Glue-pot for paper-folding machines. Harold S. Labombarde, Nashua, N. H. Filed Dec. 3, 1927. 10 claims. (Cl. 93—68).

1,712,178. Treatment of transparent material. Charles E. Swett, assignor to United States Envelope Company, Springfield, Mass. Filed Aug. 14, 1924. 4 claims. (Cl. 91—68). Treatment of glassine paper.

1,712,374. Apparatus for making paper. Robert Edward Argy, Niagara Falls, N. Y. Filed July 9, 1928. 3 claims. (Cl. 92—38). Combination with the last set of wet press rolls of a baby drier.

1,712,375. Paper machine. Robert Edward Argy, Niagara Falls, N. Y. Filed July 9, 1928. 5 claims. (Cl. 92—38). Combination with the last wet press rolls of an upper and lower paper carrying roll between them and the final driers.

1,712,376. Chain for wood-pulp grinders. John Ernest, assignor to John J. Warren, Brownville, N. Y. Filed Nov. 8, 1924. 5 claims. (Cl. 83—75).

1,712,378. Wire guide for paper machines. Frank Ciborowski, Worcester, Mass. Filed Nov. 21, 1927. 3 claims. (Cl. 74—51).

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1,712,587. Web carrier for papermaking machines. William E. Sheehan, Albany, N. Y. Filed Apr. 13, 1927. 3 claims. (Cl. 92—49).

1,712,598. Paper-pulping machine. Walter Werner, assignor to The Noble and Wood Machine Co., Hoosick Falls, N. Y. Filed Jan. 20, 1927. 4 claims. (Cl. 92—23).

1,712,590. Beating engine. Walter Werner, assignor to The Noble and Wood Machine Co., Hoosick Falls N. Y. Filed Feb. 15, 1927. 7 claims. (Cl. 92—22).

1,712,632. Deckling mechanism for paper-making machines. Emil A. Peterson and Carl E. Ever-

son, assignor to Valley Iron Works Company, Appleton, Wis. Filed January 3, 1928. 18 claims. (Cl. 92—44).

1,172,770. Apparatus and process for impregnating felt and the like. Henry C. Koch, Chicago, Ill. Filed June 30, 1926. 6 claims. (Cl. 91—46).

1,712,779. Paper bag. Harry W. Vierengel, Brooklyn, N. Y. Filed June 23, 1928. 4 claims. (Cl. 229—68).

1,712,852. Stock-spreading flow box. Edwin H. Streeter, assignor to Wood Conversion Company. Filed Jan. 8, 1927. 23 claims, (Cl. 92—39).

1,712,965. Laminated board and method of making same. Algar G. Maranville, assignor to The B. F. Goodrich Company, New York, N. Y. Filed April 21, 1927. 9 claims. (Cl. 154—46).

1,713,083. Machinery for the manufacture of fiber boards. Wilford B. Hoggatt, New London, Conn. Filed Apr, 1928. 12 claims. (Cl. 92—39).

1,713,382. Guard for paper-winding machines. John C. Hammel and William O. Dickinson, Ogdensburg, N. Y. Filed Feb. 15, 1927. 8 claims. (Cl. 242—76).

1,713,485. Vacuum-chamber seal for paper driers. John E. Alexander, assignor to Minton Vacuum Dryer Corporation, Greenwich, Conn. Filed Nov. 1, 1922. 21 claims. (Cl. 34—48).

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1,713,510. Heating and ventilation of paper-pulp-grinding buildings. Emil A. Briner, East Orange, N. J. Filed Dec. 11, 1926. 12 claims, (Cl. 83—75).

1,713,642. Process of paper making. Levis Miller Booth, Plainfield, N. J. Filed Feb. 8, 1928. 7 claims. (Cl. 92-21). Addition of substances to produce a metallic hydroxide subsequent to the addition of the sizing materials.

1,713,681. Process, plant and apparatus for the industrial treatment of cocoanuts and their constituents, particularly cocoanut fibers. Barend Gysbertus Hendrikus van der Jagt, The Hague, Netherlands. Filed Jan. 29, 1926. 15 claims. (Cl. 92—4).

1,713,682. Fiber-board shipping case. Harrison B. Walter, assignor to container Corporation of America, Chicago, Ill. Filed Aug. 1, 1927. 8 claims. (Cl. 229—15).

1,713,720. Paper cup and process of making same. Paul R. Simmons, assignor to Paramount Paper Products Company, Indianapolis, Ind. Filed Feb. 23, 1924. 1 claim. (Cl. 229—21).

1,713,846. Leather substitute and process of making. Robert A. Marr, Norfolk, Va. Filed Jan. 12, 1924. 5 claims. (Cl. 92-21). A sized pulp is used.

1,713,904. Mechanism for working fibrous material. Helgo Wiggo Jespersen, assignor to Western Electric Company, Incorporated, New York, N. Y. Filed Oct. 15, 1926. 11 claims. (Cl. 92—41). A forming member.

1,713,988. Paper-making machine. Charles W. Valentine and Alfred F. Helin, assignors to The Bagley and Sewall Company, Watertown, N. Y. Filed Nov. 8, 1927. 19 claims. (Cl. 92—51). Suction device

1,714,047. Screen. Harold J. Reed and Claude L. Spafford, assignors to Improved Paper Machinery Company, Nashua, N. H. Filed Mar. 31, 1925. 24 claims.—(Cl. 92—34).

1,714,052. Sized fibrous product and method of making same. Hugh McCurdy Spencer, Lockport, N. Y. Filed Mar. 12, 1926. 12 claims. (Cl. 92—21). Method of coagulating a rosin emulsion.

1,714,206. Process for coating roofing felt. John C. Black and Wirt D. Rial, assignors to Pan American Petroleum Company, Los Angeles, Calif. Filed Mar. 10, 1927. 5 claims. (Cl. 91—68).

1,714,222. Method of impregnating paper for bag tubes. Alfred Holter, Brevik, Norway. Filed Nov. 23, 1927. 5 claims. (Cl. 93—20). Aluminum compounds are used.

1,714,238. Paper-making machine. Charles E. Pope, assignor to Great Northern Paper Company, Millinocket, Maine. Filed April 21, 1923. 1 claim. (Cl. 92—43). Cylinder.

1,714,240. Composite waterproof sheet and process of making the same. Charles Hanson Rayner, St. Johns, Quebec, Canada. Filed Mar. 15, 1926. 1 claim. (Cl. 154—28).

1,714,261. Paper-converting machcinery. Francis W. Egan and John O. Ross, assignors to J. O. Ross Engineering Corporation, New York, N. Y. Filed Nov. 11, 1927, 22 claims. (Cl. 92—73)• Finishing roll.

1,714,277. Paper bag. Samuel Reich, Brooklyn, N. Y. Filed July 5, 1927. 2 claims. (Cl. 229—54).

1,714,293. Paper cup. Charles S. Batdorf, assignor to Purity Cup Corporation, New York, N. Y. Filed Oct. 12, 1926. 9 claims. (Cl. 229—21).

1,714,459. Process for softening vegetable fibers. Sidney D. Wells, assignor to Paper Mill Laboratories, Inc., Quincy, Ill. Filed Sept. 25, 1926. 8 claims. (Cl. 92—13). Use of spent alkaline cooking liquors.

1,714,471. Folding box. Gerald D. Sullivan, assignor to The Cole Folding Box Company, Akron, Ohio. Filed Feb. 19, 1927. 5 claims. (Cl. 229—16).

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Reissue 17,303. Pulp-forming machine. Charles J. Keenan, Eugene P. Kennedy and George H. Kirsch, assignors to Alaska Pulp and Paper Company. Filed Oct. 12, 1927. Original No. 1,621,671, dated Mar. 22, 1927. 17 claims. (Cl. 92—57).

1,714,541. Means and method for making paper tubes or the like. Samuel Bergstein, Middletown, Ohio. Filed Mar. 31, 1927. 5 claims. (Cl. 93—80).

1,714,542. Paper box or the like. Samuel Bergstein, assignor to The Interstate Folding Box Company, Middletown, Ohio. Filed July 19, 1927. 2 claims. (C. 206—44).

1,714,640. Method of making fiber board. William M. Shoemaker, Jr., assignor to National Vulcanized Fibre Company, Wilmington, Del. Filed Aug. 13, 1927. 7 claims. (Cl. 154—34).

1,714,641. Apparatus for making fiber board. William M. Shoemaker, Jr., assignor to National Vulcanized Fibre Company, Wilmington, Del. Filed Jan. 28, 1928. 6 claims. (Cl. 154—34).

1,714,752. Rotary refiner. Edmund P. Arpin, Jr., Port Edwards, Wis. Filed Mar. 16, 1928. 5 clafms. (Cl.92—26).

1,714,785. Machine for the manufacture of paper articles. Alden Hudson, assignor to David W. Hudson, Green Bay, Wis. Filed Jan. 14,1924. 5 claims. (Cl. 164—49).

1,714,831. Process of producing fiber. Alfred Tingle, Ottawa, Ontario, Canada. Filed Jan. 25, 1924. 7 claims. (Cl. 92—9). Digesting vegetable fiber in an aqueous solution of lime and sulphur.

1,714,916. Pulp-suction die. James Fleming Low, Toronto, Ontario, Canada. Filed Apr. 23, 1928. 6 claims. (Cl. 92—54).

1,715,025. Paper cup. Cesare Barbieri, assignor to The Vortex Mfg. Co., Chicago, Ill. Filed July 7, 1927. 10 claims. (Cl. 229—15).

1,715,080. Building fabric. Otto A. Frederickson, assignor to The Wire-Mold Company, Hartford, Conn. Filed Jan. 3, 1927. 3 claims. (Cl. 91—68). Waterproof and flame repellent building paper.

1,715,310. Process of treating paper pulp. Roger Green Smith, Pasadena, Calif. Filed Apr. 11, 1925. 5 claims. (Cl. 92—21). Introduction after digestion and before beating of an aqueous solution of a sulphate and an acid.

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1,715,354. Box machine. Alexander H. Dreux, assignor to F. N. Burt Company, Limited, Toronto, Canada. Filed July 17, 1927. 20 claims. (Cl. 93—36).

1,715,392. Method and apparatus for saturating fibrous materials in the manufacture of roofing. August E. Schutte, assignor to The Flint-Kote Company, Boston, Mass. Filed July 2, 1925. 12 claims. (Cl. 91—46).

1,715,398. Suction box. Harrison R. Williams. New York, N. Y. Filed Mar., 1927. 5 claims (Cl. 92—51).

1,715,528. Removable-type Fourdrinier paper-making machine. Alonzo Aldrich and Earl E. Berry, assignors to Betoit Iron Works, Beloit. Wis. Filed Sent. 19, 1925. 7 claims. (Cl. 92—44).

1,715,529. Removable-type Fourdrinier paper making machine. Alonzo Aldrich and Earl E. Berry, assignors to Beloit Iron Works, Beloit. Wis. (Filed Dec. 8, 1926. 5 claims. (Cl. 92—44).

1,715,530. Removable-type Fourdrinier paper making machine. Alonzo Aldrich and Earl E. Berry, assignors to Beloit Iron Works, Beloit. Wis. Filed Dec. 8, 1926. 6 claims. (Cl. 92—44).

1,715,531. Removable-type Fourdrinier paper machine. Alonzo Aldrich and Earl E. Berry. assignors to Beloit Iron Works, Beloit, Wis. Filed May 21, 1928. 8 claims. (Cl. 92—44).

1,715,583. Paper Box. Harold Raymond Warren, Company, Everett, Mass. Filed Dec. 1, 1927. 8 claims. (Cl. 229—8).

1,715,585. Box-making machine. William W. Woodworth, assignor to Hoague-Sprague Corporation, Lynn, Mass. Filed Feb. 12, 1927. 13 claims. (Cl. 93—41).

1,715,615. Paper-making machine. William H. Millspaugh, Sandusky, Ohio. Filed May 27, 1925. 18 claims. (Cl. 95—38. Means for forming a continuous paper sheet under action of vacuum.

1,715,717. Machine for making envelopes. Frederick James Parks, Cleveland, Ohio. Filed Dec. 5, 1927. 2 claims. (Cl. 93—62).

1,715,814. Insulated shipping container. Judd A. Brown, Bucksport, Calif. Filed Aug. 8, 1927. 4 claims. (Cl. 229—14).

1,716,006. Method of producing cellulose and paper from straw, esparto, reed and similar raw materials. Erik Ludvig Rinman, Djursholm, Sweden. Filed Mar. 28, 1927. 3 claims. (Cl. 92—13). Alkaline process at a temperature not exceeding 140° C.

1,716,059. Tank-charging appliance. Carl Huntemüller, Weissenborn, Germany. Filed Nov. 14, 1927. 8 claims. (Cl. 92—7).

1,716,215. Article of manufacture made of waste cones. Charles K. Dunlap, assignor to Sonoco Products Company, Hartsville, S. C. Filed July 13, 1926. 2 claims. (Cl. 154—2). Making a rigid pole of paper from paper cones.

1,716,249. Device for protecting rolls of paper. James Armand Taylor and Horace A. Sheesley, Portland, and Frederick Woehler Mears, East Millinocket, Maine. Filed Dec. 21, 1927. 5 claims. (Cl. 206—59). A cap for protecting rolls.

1,716,294. Agitator. Joseph E. Bond, Appleton, Wis. Filed Mar. 5, 1928. 7 claims. (Cl. 92—37).

1,716,295. Agitator. Joseph E. Bond, Appleton, Wis. Filed Mar. 5, 1928. 5 claims. (Cl. 92—37).

1,716,296. Agitator. Joseph E. Bond, Appleton, Wis. Filed Mar. 5, 1928. 4 claims. (Cl. 92—37).

1,716,297. Agitator. Joseph E. Bond, Appleton, Wis. Filed Mar. 5, 1928. 4 claims. (Cl. 92—37).

1,716,298. Agitator. Joseph E. Bond, Appleton, Wis. Filed Mar. 5, 1928. 3 claims. (Cl. 92—37).

1,716,299. Agitator. Joseph E. Bond, Appleton, Wis. Filed Mar 5, 1928. 5 claims. (Cl. 92—37).

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1,716,554. Method and apparatus for producing fiber vessels. George K. Hoff, Jr., assignor to Ideal Cup Corporation, Brooklyn, N. Y. Filed Dec. 7, 1923. 9 claims. (Cl. 93—60).

1,716,623. Composition of matter for molding and process of making the same. John T. Collins (Thomas M. Vinson, administrator), Sandwich, Mass. Filed July 31, 1926. 19 claims. (Cl. 92—21). Fibers and gummy derivative of black liquor.

1,716,654. Process of treating highly-porous paper-like material. Kirk L. Moses, Springfield, Mass. Filed May 28, 1923. 4 claims. (Cl. 91—68). Method of filling with rubber.

1,716,776. Paper manufacture. John Allen Heany, assignor to World Bestos Corporation, Paterson, N. J. Filed Oct. 6, 1923. 18 claims. (Cl. 92—38). Method of saturating a paper web.

1,716,818. Paper bag. Talbot H. Hammond, Wellsburg, W. Va. Filed Dec. 17, 1927. 1 claim. (Cl. 229—57).

1,716,866. Paper strip. John C. Sherman, assignor to Brown Company, Berlin, N. H. Filed May 4, 1925; Mar. 28, 1927. 5 claims. (Cl. 92—39).

1,716,898. Pulp-preparing apparatus. James T. Murphy, Oak Park, Ill. Filed Sept. 20, 1926. 16 claims. (Cl. 92—24). Beater.

1,717,092. Molded indurated-fiber article and process of making same. Horace H. Clark, assignor to Clark Fibre Products Corporation. Filed Jan. 15, 1927. 3 claims. (Cl. 18—56).

1,717,223. Method and apparatus for recovery of fibers from liquids. Adolf Magnus Rupert Karlström, Hyltebruk, Sweden. Filed Aug. 23, 1927. 3 claims. (Cl. 210—53).

1,717,236. Means for the manufacture of pipes or tubes from fiber and cementitious material. Willia mHamilton MacMenigall, Jacobs, Natal, South Africa. Filed Apr. 29, 1927. 7 claims. (Cl. 92—66).

1,717,266. Process of producing wood pulp. Frans Farel Louis Schouten, Zaandam, Netherlands. Filed Mr. 2, 1927. 1 claim. (Cl. 92—20). Ground wod and method of refining.

1,717,315. Cellulose goods with permanent finish and process of producing same. Georges Heberlein, assignor to Heberlein Patent Corporation, New York, N. Y. Filed July 30, 1925. 8 claims. (Cl. 8—20).

1,717,316. Treatment of vegetable fibrous material to produce woodlike effects. Georges Heberlein, assignor to Heberlein Patent Corporation, New York, N. Y. Filed Oct. 30, 1926. 4 claims. (Cl. 8—20).

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1,717,427. Manufacture of paper cups. Joseph V. Weckbaugh, assignor to American Cuptor Corporation, New York, N. Y. Filed Sept. 10, 1925. 7 claims. (Cl. 242—55.2).

1,717,604. Process and machine for thickening pulp. Anton J. Haug and Richard J. Haug, Nashua, N. H. Filed Oct. 4, 1927. 31 claims. (Cl. 92—35).

1,717,783. Mechanism for working pulpous material. Helgo Wiggo Jespersen, assignor to Western Electric Company, Incorporated, New York, N. Y. Filed May 16, 1924. 2 claims. (Cl. 92—41).

1,717,794. Pulp and fiber product and process of making same. Robert A. Marr, Norfolk, Va. Filed Feb. 2, 1923. 18 claims. (Cl. 92—9). Use of a readily soluble alkali-forming metal sulfate.

1,717,795. Process of digesting cellulosic and ligneous materials. Robert A. Marr, Norfolk, Va. Filed Mar. 2, 1926. 11 claims. (Cl. 92—9). Use of an alkali-forming metal sulfate.

1,717,796. Process of making pulp. Robert A. Marr, Norfolk, Va. Filed Feb. 2, 1923. 11 claims. (Cl. 92—9). Use of magnesium and potassium sulfates or chlorides.

1,717,797. Process of producing pulp. Robert A. Marr, Norfolk, Va. Filed Mar. 28, 1924. 11 claims. (Cl. 92—9). Use of a normal salt of an alkali-forming metal.

1,717,798. Process of making pulp. Robert A. Mass, Norfolk, Va. Filed Mar. 27, 1924. 6 claims. (Cl. 92—9). Use of soluble nitrate.

1,717,799. Pulp product. Robert A. Marr, Norfolk, Va. Filed Apr. 16, 1924. 6 claims. (Cl. 92—9).

1,717,800. Process of treating cane material. Robert A. Marr, Norfolk, Va. Filed Oct. 17, 1922. 14 claims. (Cl. 92—9). Use of a solution containing an alkali metal sulfate and zinc sulfate.

1,717,849. Temperature-indicating device for calendar rolls. Charles E. Maynard, assignor to The Fisk Rubber Company, Chicopee Falls, Mass. Filed Apr. 2, 1927. 5 claims (Cl. 73—52).

1,717,878. Impervious paper board and process for making the same. George H. Ellis, St. Paul, Minn. Filed Mar. 26, 1923. 4 claims. (Cl. 92—41). Use of liquid bitumen.

1,717,988. Machine for manufacturing pulp articles. James Fleming Low, Toronto, Can.

1,717,991. Process of treating vegetable fibers and fabrics. Marcel Melliand, assignor to Meliana Corporation of America. Filed July 25, 1927. 5 claims. (Cl. 8—20). Mercerizing treatment.

1,717,992. Process for increasing the strength and elasticity of cotton fibers. Marcel Melliand, assignor to Meliana Corporation of America. Filed July 2, 1925. 2 claims. (Cl. 8—20). Mercerizing treatment.

1,718,011. Artificial board and its manufacture. Clarence C. Vogt, assignor to Armstrong Cork Co., Pittsburgh, Pa. Filed Sept. 29, 1927. 7 claims. (Cl. 92—21). Use of phenolic body.

1,718,012. Artificial board and its manufacture Clarence C. Vogt and Ernest J. Pieper, assignors to Armstrong Cork Co., Pittsburgh, Pa. Filed Sept. 29, 1927. 3 claims (Cl. 92—21).

1,718,096. Method of and apparatus for making paper, boxboard and the like. Fred B. Wells, assignor to The Ohio Boxboard Company, Cleveland, Ohio. Filed June 28, 1926. 10 claims. (Cl. 92—38).

1,718,145. Sheet material feeding and severing apparatus. Carl H. Hartman, assignor to St. Regis Paper Company, New York, N. Y. Filed Nov. 13, 1922. 6 claims. (Cl. 164—49).

1,718,145. Sheet-material-feed control. Carl H. Hartman, assignor to St. Regis Paper Company, New York, N. Y. Filed Nov. 13, 1922. 1 claim. (Cl. 271—2.3).

1,718,204. Folding box. Elmer H. Lupton, assignor to The Bartgis Brothers Company, Baltimore, Md. Filed Dec. 23, 1927. 1 claim. (Cl. 229—34).

JUNE 25, 1929

1,718,399. Method and apparatus for removing knots from mechanical and chemical wood pulp. Axel Christian Andersen and Arne Schie, Borregaard, near Sarpsborg, Norway. Filed Apr. 28, 1927. 7 claims. (Cl. 92—36).

1,718,573. Paper making method and machine. William Hulse Millspaugh, assignor to The Paper and Textile Machinery Company, Sandusky, Ohio. Filed Sept. 14, 1922. 23 claims. (Cl. 92—38).

1,718,574. Paper making method and machine. William H. Millspaugh, Sandusky, Ohio. Filed May 11, 1925. 46 claims. (Cl. 92—39). Method of making plural-ply paper in a continuous sheet.

1,718,890. Apparatus for constructing plaster wall board. Charles R. Birdsey, assignor to United States Gypsum Company, Chicago, Ill. Filed Aug. 23, 1922. 6 claims. (Cl. 154—1).

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

By Clarence J. West, Chairman

Cellulose

"Pure" Cellulose as a Colloid. P. P. von Veimarn. Repts. Imp. Research Inst. Osaka Japan 8, 19-39 (1927.) Natural cellulose fibers have a superficial layer of fatty or waxy material that hinders dispergation in salt solutions and accounts for the differences in the ease of dispergation of different kinds of cellulose. By suitable mechanical and chemical treatments the cutical layer can be removed, when the cellulose becomes easily dispersable. Raw cotton cellulose does not disperse in boiling saturated sodium thiocyanate solution, but by prolonged extraction with petroleum ether, amyl alcohol, ethyl ether of xylene the cotton cellulose is rendered dispersable. Boiling for eighteen hrs. in absolute xylene followed by 8 hours extraction with ethyl ether gave a sample of cotton cellulose that was almost as rapidly dispersed in boiling saturated sodium thiocyanate solution as pure filter paper. A 1 % solution so prepared formed a clear transparent jelly on cooling. Cellulose cannot be considered pure until all cuticle and all of the inner layer of the fibers, representing the walls of the lumen, have been removed, and in addition the structure of the fiber has been completely broken down by dispergation to remove admixtures. This can be done by precipitating cellulose from its dispersion in salt solutions by diluting with water and purifying the precipitate by electrodialysis.—A.P.-C.

Researches on Cellulose and its Derivatives. Jean J. Trillat. Rev. Gen. Colloides 6, 177-192 (Aug.-Sept. 1928). The author studied the various transformations of cellulose and the phenomena of acetylation by means of X-ray spectrophotography. His results show that cellulose, oxycellulose and hydrocellulose give identical diagrams, except for orientation phenomena; hydracellulose and alkali-cellulose, on the other hand, give different results. The cellulose form is converted into hydrocellulose whenever cotton is subjected to a swelling process (acetylation followed by saponification, viscose, etc.). A study of acetylation showed that the structure of acetylated compounds varied according to the degree of acetylation; the presence of a crystalline phase and of an amorphous phase was shown, and the approximate dimensions of the elementary units constituting the solid colloidal gel were calculated.—A.P.-C.

Constitution of Flax Cellulose. George W. Rigby. M. I. T. J. Am. Chem. Soc. 50, 3364-3370 (Dec. 1928). From the results of the experiments described, the author concludes that: Flax bast fibers consist of cells composed of pure cellulose and intercellular material containing a furfural-yielding constituent. The glucose residues in flax cellulose are joined together in positions one and four by glucoside linkages, as are those in cotton. Cellobiose is obtained from flax cellulose in yields equivalent to those from cotton; this assures that at least two glucose residues are combined in the cellulose and suggests that probably at least three are combined in the unit from which the cellulose molecule is constructed, proposed by J. C. Irvine. Acetates of a trisaccharide and of an anhydro-trisaccaride may be obtained from flax cellulose; this supports the proposed anhydro-trisaccharide unit formula. The above results point to the chemical identity of cotton and flax cellulose, without reference to the relative states of polymerization.—A.P.-C.

Contribution to the Theory of Mercerisation. The Action of Sodium Hydroxide on Partially Methylated Cellulose. The Preferential Absorption and Heat Evolution. Frederick Charles Wood and Agnes C. Alexander. J. Soc. Chem. Ind. 47, 357T-361T (Dec. 14, 1928). Recent papers on the absorption of caustic soda by cellulose are criticized. A study of the preferential absorption of alkali by partly methylated cellulose by the centrifuge method and of the heat evolved during the process shows that the greater dispersion of the methylated cellulose results in a great increase in the heat evolution (for anhydrous materials). On the other hand, in spite of this large increase in degree of dispersion brought about by the process of methylation, the preferential absorption of sodium hydroxide is considerably diminished at all concentrations of solution. This preferential absorption of caustic alkali by cellulosic material is therefore concluded to be a function a hydroxyl groups present.—A.P.-C.

New Reagent for the Detection of Oxycellulose. W. F. A. Ermen. J. Soc. Dyers and Color. 44, 303-305 (1928). Oxidized cellulose may be detected by straining blue with ferric ferrocyanide when immersed for 1 min. in a boiling solution of ferric ferrocyanide consisting of 250 cc. of water and 5 cc. each of solutions containing (per 100 cc.) 20 g. of ferric sulphate and 25 g of ammonium sulphate, and 33 g. of potassium ferricyanide. Pure bleached cotton reacts slightly, and unbleached cotton more so with this reagent, but not sufficiently to interfere with the detection of oxidized cellulose. The reagent is readily reduced by sodium hyposulphite, phenol, aniline, tannic acid, wool, but not silk. Cotton may be dyed with Prussian blue by first mordanting with tannic acid and tartar emetic, and then immersing in the cold reagent, whereas wool may be dyed directly. When treated together with the reagent, woodpulp becomes stained deep blue and cotton or linen paper remains almost unaffected.—A.P.C.

Degree of Swelling of Hydrated Cellulose (Artificial Silk). O. Faust. Cellulosechemie 9 74-75 (1928). Changes in length of artificial silk fibers on immersion in water and in sodium hydroxide solutions show that the degree of swelling decreases with increasing tempertaure, the difference being greater the higher the concentration of sodium hydroxide. The degree of swelling, as determined by length measurements, is lower in sulphuric acid solution than in water.—C. J. W.

Determination of Alpha Beta and Gamma Cellulose. Gunnar Porrvik. Papierfabr. 26, 81-85, 120-124, 133-139, 151-157, 179-183 (1928). The sources and magnitude of the errors of this determination have been studied in detail. The methods used were the usual Jentgen method and a titration method carried out as follows: 2.5 grams of pulp are treated 30 minutes with exactly

70 cc. of mercercizing solution, which is then filtered off without dilution. Of the filtrate, 50 cc. are used for the determination of beta—and gamma-cellulose, the remainder being added to the alpha-pulp, which is then dissolved in concentrated sulphuric acid. Cellulose is determined in the solutions by oxidation with potassium dichromate. On the assumption that the 50 cc. of solution used for the determination of beta- and gamma values contain 5/7 of the hemicelluloses, the true alpha, beta- and gamma values are calculated. Repeated extraction of the alpha portion with mercerizing solution shows that this assumption is correct within 0.1 per cent. In both methods beta and gamma values are determined by titration. The degree of neutralization and heating used in separating the beta-cellulose has a marked influence on the beta-gamma ratio. In Jentgen's method, the first 1000 cc. of the filtrate contain 97 per cent of the hemicelluloses. The alpha values from this method are decreased 1 per cent by changing the temperature of treatment from 20°C to 0°C; by doubling the kneading time; or by changing the relative humidity at which the pulp is dried (at room temperature) from 100 to 0 per cent. They are decreased 1.5 per cent by doubling the volume of mercerizing solution or by changing the concentration of the solution from 18 to 24 per cent by weight. With a mercerizing solution containing 30 per cent ethyl alcohol (to inhibit swelling) the alpha values are 4-5 per cent higher than in aqueous sodium hydroxide and nearly independent of the solution volume. With the titration method, the alpha values were found to be roughly in inverse ratio to the degree of swelling in sodium hydroxide solution of varying concentration. The lowest values were found in solutions of 12 grams per 100 ss. Dilution of a more concentrated solution than 12 per cent before filtration (as in the Jentgen method) gives alpha-cellulose values corresponding to a 12 per cent solution, while dilution of a more dilute solution has no effect. Finally, though 6 per cent and 22 percent solutions give nearly the same alpha-cellulose values by the titration method, the stronger solution gives a purer cellulose, as shown by the copper number and viscosity determinations. Many experimental data are discussed in detail, with the following conclusions: The solution of hemicelluloses is governed by 2 interdependent sets of factors, one related to the swelling and mechanical condition of the pulp, the other to temperature and time of treatment. Gamma cellulose is an end product, beta cellulose an intermediate product in the degradation of cellulose by concentrated sodium hydroxide. The most serious error in the Jentgen method is caused by the dilution before filtration. Details are given of two new methods for alpha cellulose determination, which are stated to give improved accuracy and reproducibility of results. Both use 2.5 grams of pulp, 70 cc. of solution and a mercerizing time of 30 minutes. In the *minimal method* the solution contains 12 g. sodium hydroxide per 100 cc. The pulp after filtration is washed with four 25 cc. portions of this solution, then with water and acid in the usual way, dried and weighed. In the *alcohol method* the sodium hydroxide solution contains 21.8 grams per 100 cc. The pulp is treated as in the minimal method except that the washing with the mercerizing solution is followed by a wash with four 25 cc. portions of 95 per cent ethyl alcohol. The minimal method gives approximately the "true content of resistant cellulose," while the alcohol method shows how much will withstand the alkali treatment in the preparation of viscose. Typical results given by the Jentgen method, the titration method (with 21.8 per cent by volume of sodium hydroxide), the minimal method and the alcohol method respectively, are: for cotton pulp, 96.7, 99.2, 94.5, 98.9; good viscose pulp, 88.2, 89.9, 83.6, 89.2; poor pulp, hardly suitable for viscose, 87.3, 88.6, 82.5, 96.9.—C. J. W.

Lignin

Chemical Decomposition of Wood. B. Holmberg .Papierfabr. 26, 506-508 (1928). Experiments on the "mercaptolysis" of woods are described. The lignin compounds isolated from pine wood by heating with acid solutions of thioglycollic acid are described. Evidence of the presence of two types of lignin in pine wood is obtained.—C. J. W.

Lignin. R. Wigginton. Fuel 7, 268-272 (1928). An account is given of recent work on the chemistry of lignin; Kurschner's investigations are described in some detail.—C. J. W.

Problem of Lignin. Fritz Rosendahl. Metallborse 17, 2273-2274, 2329-2330, 2386-2387 (1927). Methods for the isolation and the decomposition of lignin are discussed with a few constitutional formulas.—C. J. W.

Behavior of Lignin and Chlorolignin in the Preparation of Wood Pulp by Means of Chlorine. I. P. Waentig. Z. Angew. Chem. 41, 493-498 (1928). In the chlorine method of cellulose isolation the chief economic problems to be solved are the high consumption of chemicals and the utilization of the by-products. The chlorine attacks almost exclusively the lignin, since isolated lignin takes up about the same amount as that in natural lignocellulose, one part of lignin requiring about 1.4 parts of chlorine, of which about 70 per cent reappears as hydrochloric acid. The heat liberated during the reaction is approximately 175 kg.—cal. per kilogram of wood or 120 kg.—cal. per kilogram of grain straw. These results are approximate, since the amount of chlorine absorbed depends upon the temperature and the time of reaction, but if these are kept constant the amounts of heat evolved, the hydrochloric acid formed and the yield of cellulose are the same whether chlorine water or gaseous chlorine (with moist wood) is used. Since the reaction is carried out at a comparatively low temperature, mechanical disintegration is desirable to facilitate the penetration of the fibers by the liquor and thus ensure uniform chlorination, increase of pressure and the use of chlorine solvents being also disadvantageous from this point of view. In the absence of such aids the process is only suitable for straw, flax, hemp and short-fibered woods. Though the amount of chlorine taken up increases with increasing temperature, the amount of hydrochloric acid formed increases at the same rate and the ratio remains constant. Preheating of the wood with the alkalies reduces the amount of chlorine necessary but the ratio of total chlorine to hydrochloric acid remains practically constant. If the chlorination is carried out in the presence of aqueous hydrochloric acid (10-16 per cent) instead of water, the total chlorine used is unchanged but the amount of hydrochloric acid formed decreases, indicating that hydrolysis of chlorolignin takes place less readily under these conditions. Dry chlorine does not react with dry wood. In the presence of a limited qauntity of water, the temperature may rise above 100° C. and the concentration of hydrochloric acid in the water may exceed 20 per cent. Both these conditions have a harmful effect on the resulting fiber, but by the use of water as a cooling agent and chlorine carrier the reaction is modified so that a strong fiber possessing good folding properties is obtained.

Behavior of Lignin and Chlorolignin in the Preparation of Wood Pulp by Means of Chlorine. II. P. Waentig. Z. Angew. Chem. 41, 977-980 (1928). In the de Vains and Pomilio chlorination processes, the preliminary treatment of the material with soda leads to economy in the total consumption of soda. In the pretreatment of wood, high concentration of soda and high cooking pressure both tend to reduce the amount of soda and chlorine required in the later stages of the processes. The net soda consumption is also reduced by utilizing the digester liquor for washing our chlorolignins. By the extraction of chlorolignin with alcohol it is shown that the rise in temperature of the material during chlorination and the addition of hydrochloric acid increases the yield of chlorolignin and also its chlorine content. It is suggested that in the process chlorolignin is partially hydrolyzed by the water present and the addition of hydrochloric acid retard this. Further prolonged exposure to chlorine results in the production of more highly chlorinated compounds. having greater solubility in alcohol. Hydrochloric acid formed during during chlorination causes some degradation of cellulose but by careful control an alpha-cellulose content of 95-96 per cent may be attained.—C. J. W.

Behavior of Lignin and Chlorolignin. The Preparation of Wood Pulp by Means of Chlorine. III . P. Waentig. Z.

Angew. Chem. 41, 1001-1005 (1928). Chlorolignins produced in the chlorination processes from woody and other fibers have a mean chlorine content of 30 per cent, if extracted by organic solvent. In water-extracted chlorolignins, the average value is 18-19 per cent but further extraction of these with organic solvents yields the higher chlorinated product. The most successful extraction of chlorolignin occurs when the preliminary cooking of the fiber with soda is abandoned. Chlorolignin so obtained decomposes slowly is moist and more rapidly by heating, yielding hydrochloric acid. In a sealed tube 2/3 of its chlorine number is recovered as hydrochloric acid. The amount of soda necessary to dissolve chlorolignin in the cold is less than the chlorine equivalent, but at 95-100° C. more soda is required. Lime precipitates chlorolignin from soda solution; hence the disadvantages attaching to the use of lime and bleaching powder in processes for cellulose production. The lime-chlorolignin precipitates is earily hydrolized and a large excess of lime is required for complete precipitation. The molecular weight of chlorolignin in acetone is about 1000.—C. J. W.

Review of Recent Papers on Lignin. Clarence J. West. National Research Council. Paper Tr. J. 87, No. 24, 51-53 (Dec. 13, 1928).—A.P.-C.

Color Reactions of Lignin. Fran Podbreznik. Institut du Pinl, Bordeaux. Bull. Inst. Pin. No. 53, 233-236 (No. 54, 245-250 Oct. 15, Nov. 15, 1928). The author first discusses the function and relative importance of surface adsorption and of slow chemical reactions in the production of characteristic colors on treating lignin with various reagents. The two chief practical difficulties in applying these reactions to lignified membranes are (a) those due to uneven coloring of the tissues, and (b) those due to non-uniform density of the material. The author describes the technic which he has devised for carrying out these tests, particularly on wood tissues, in which (a) is eliminated or reduced to a minimum by grinding the material to a powder and incorporating suitable, inert, white pigments, and (b) is eliminated or reduced to a minimum by compressing the material. Most of the reactions found in the literature as being given by aromatic amines and phenols (a bibliography of 43 references is given) have been repeated by the author, and in a number of cases the results obtained contradicted published data. The following new characteristic reaction was found; Pine sawdust is colored orange by heating very gently with a solution of potassium chlorate and hydrochloric acid. It is shown that the coloring of lignified tissues can be due neither to the methylpentosans nor to other aromatic compounds, such as vanillin, coniferyl alcohol or Czapek's "hadromal". Of a number of aromatic compounds, eugenol was found to give reactions which, on the whole, most closely resembled those of lignified tissues. As extracted lignin and oxidized lignin give the same reactions as the lignified tssues, the author concludes that they are due mainly to lignin, but that other factors are also probably involved as lignin may undergo partial hydrolysis or depolymerization in carrying out the reactions.—A.P.-C.

Raw Materials

Hardwoods for Pulp and Paper. C. E. Curran. Forest Products Lab., Madison Wisconsin. Paper Mill 51, No. 46, 12, 14, 38-40 (Nov. 17, 1928). An outline and discussion of the work done at the Forest Products Lab. on the pulping of hardwoods by the sulphite process (cf. Osborne Paper Mill 50, No. 22, 22, 24 89 (1927); Monsson, Paper Trade J. 86, No. 17, 59-62 (1928); Pulp Paper Mag. Can. 26 705-709 (1928), particularly from the standpoint of their utilization for the manufacture of news print. The work, carried out chiefly on two species of New Zealand woods, *viz.*, insignis pine (identical with California Monterey pine) and "tawa" (similar to American maple) showed that a satisfactory sheet could be made from the followng furnish; 15 per cent insignis pine sulphite, 50 per cent tawa sulphite and 35 per cent tawa groundwood. Though this furnish differs considerably from that of so-called "standard" news print (25 to 30 per cent softwood and 75 to 70 per cent softwood groundwood), it could probably be produced at a cost slightly lower than the average cost of production of "standard" news print in United States mills on account of the lower cost per cord and greater density and weight (resulting in higher yield) per cord of hardwoods as compared with softwoods.—A.P.-C.

Process for the Production of Cellulose. O. C. Strecker. Eng. pat. 284, 846, Jan. 13, 1927. Practically pure cellulose, in high yield, is obtained from materials such as red pine wood, beech wood, bamboo, straw and Scotch fir or other resinous woods by use of boiling solutions containing hydroxyl compounds of the isocyclic series in which at least one hydrogen atom of the hydroxyl group has been replaced by a meatal, preferably of the alkali, alkaline-earth or magnesium groups. Metal derivatives of phenol, cresol, naphthol and their hydrogenated derivatives or substitution products containing halogens or nitro groups may be used and these substances are preferably used in the form of permanent emulsions which may be stabilized by additions such as castor oil soaps, cyclohexanol and salts of humic acids. Penetration of the vegetable fibers is promoted by addition of various salts such as tri-codium phosphate or various other substances and catalysts also may be used, of which varium peroxide is given as an example. The boiling may be effected under pressure to expedite the operation and attack on the cellulose fibers themselves may be checked by addition of substances such as sodium sulphite, sodium formate, sodium malate, sodium phenyl sulphonate, or their homologues or substitution products, stannous oxide, or the like. Metal compounds may be added during the process to replace the metalcation entering into the liquor by chemical reaction with acids formed from the vegetable fibers. Numerous details and modifications are given.—A.P.-C.

Technology of Straw Pulp Production During the Last 25 Years. G. Odrich. Papierfabr. 26, 333-35 (1928). Controversial, regarding the merits of the Braun (monosulphite) process.—C. J. W.

Characterization of Spruce Wood for Groundwood and for Cellulose. E. Mork. Papir-Journ. 16, 40-44, 54-58, 64-69, 79-83, 88-91, 101-104, 111-114. (1928). The author's purpose is to attempt to show anatomical differences in the structure of the wood in different parts of the tree and in annual rings of various widths in order to account for the greater dry weight and consequently higher yield of wood with narrow annual rings. From a study of the per cent of summerwood, the fibre length and the fibre thickness on five specimens of spruce it was found that; (1) other conditions being equal, wood with narrow annual rings has a higher percentage of summerwood and contains longer fibers than wood with broad rings, except that in the case of rings of less than 1.00 mm width deviations from this rule may be found; (2) there is no regularity in the relation between width of annual rings and cell wall thickness and there is no indication that broad ringshave larger cells spaces. Since summerwood yields the same amount of pulp as springwood on a weight basis (according to Kinnman) it is evident that wood with narrow annual rings and having as high as twice the percentage of summerwood as wood with broad annual rings will yield more pulp per cord. —C. E. P.

Compression Wood, and its Pulping Characteristics by the Sulphate and Sulphite Processes. S. Ulfsparre. Svensk Papper-Tidn 31, 642-4. (1928). Compression wood is distinguished from ordinary wood by its relatively broad rings with light springwood and strongly reddish summerwood, its greater hardness and specific weight and its low moisture content. The tracheids are relatively short and have thick walls and small cell spaces, while the lignin content is high with a corresponding decrease in cellulose content. The pulp from compression wood by both the sulphate and sulphite process was dark in color, low in yield with an abnormally high amount of screenings, evidently due to insufficient pentration.—C. E. P.

Methylation of Beech Wood and Cleavage of the Methylated Wood. Anton von Wacek, Berichte 61, 1604-1609 (1928). For abstract *see* Chemical Abstracts 22, 4808 (1928)—C. J. W.

Analytical

Fineness and Available Lime Content of Chemical Quicklimes. J. S. Rogers. Bureau of Standards, Washington, D. C. Ind. Eng. Chem. 20, 1355-1356 (Dec. 1928). A method is suggested for determining the fineness of quicklime consisting essentially in adding 100 G. of lime to 500 cc. of water, agitating continuously for 3 to 5 min., then at 4-hr intervals for 24 hours, pouring into the top of a series of four sieves nested in the following order: No. 30, No. 50, No. 100, No. 200, washing with a gentle stream of water till the wash water is clear, drying overnight at 110° C. to 120° C., and weighing. Determination of total CaO and available CaO (by the Scaife method) in 17 samples of chemical quicklime showed little correlation between the two, as was to be expected in the light of possible overburned and underburned which might be present.—A.P.-C.

Use of Potassium Iodate in Back Titration for the Determination of the Hypochlorite Content of Solutions. John R. Lewis and R. F. Klockow. University of Wisconsin. J. Am. Chem. Soc. 50, 3245-3244 (Dec. 1928). Hypochlorite can be titrated by adding an excess of standard of sodium thiosulphate, standard sodium arsenite or standard potassium iodide solution, and titrating the excess with decinormal potassium iodate solution according to the method described by Jamieson for the determination of hydrogen peroxide. In the sodium arsenite method the unoxidized excess should be titrated in the presence of at least 12 per cent hydrochloric acid; the results are accurate in the presence of small amounts of nitrate or chlorate. In the thiosulphate and amounts of nitrate or chlorate. In the thiosulphate and iodide methods, the titration mixture should be cooled in an ice-bath before adding the iodate; chlorate interferes with the accuracy in both cases.—A.P.-C.

Sanitary Analyses in the Pulp and Paper Industry. L. F. Warwick. Wisconsin State Board of Health. Paper Trade J. 87. No. 20, 42-44 (Nov. 15, 1928). An outline of methods for the determination of oxygen demand, dissolved oxygen, oxygen consumed, solids, nitrogen, acidity and alklinity, and a detailed description of a method for the determination of the oxygen demand of pulp and paper mill wastes, which have been found satisfactory in the investigation of the effect of pulp and paper mill wastes on streams. They are suggested for adoption as tentative standards for such investigations.—A.P.-C.

Chemistry of Beech Wood; Acetylation of Beech Wood and Cleavage of the Acetyl-Beach Wood. Hermann Suida and Hubert Titsch. Ber ichte 61, 1599-1604 (1928). For abstract *see* Chemical Abstracts 22, 4807-4808 (1928).—C. J. W.

Analysis of Scale Copper from Relief Liquor and Gas Piping in Sulphite Digesters. J. Benjamin Jones, Nashwaak Pulp and Paper Co., Pulp and Paper 26, 1484 (Oct. 25, 1928). Detailed directions are given for the determination of sulphite sulphur and free sulphur, insoluble calcium and copper.—A.P.-C.

Testing Sulphite Liquor . Erwin Schmidt. Zellstoff u. Papier 7, 56-57 (1927). The iodate method for determining free sulphur dioxide is practically just as sensitive towards weak acids as the sodium hydroxide titration in the presence of phenolphthalein. With cooking liquors containing organic acids greater precision cannot be obtained with the iodate method than with Hohn's method. Experiments with the iodate-iodide method in which the amount of water was the only variable showed that by increasing the volume of the latter the amount of thiosulphate required for the titration decreased.—C. J. W.

Apparatus for the Analysis of Solutions, Especially Bleach Liquors Containing Chlorine. K. Kintzmann. Chem. Fabr. 1928, 266-267. To determine available chlorine in a bleach liquor an apparatus comprising a graduated tube with a lower reaction bulb and an upper stoppered bulb holding 75 cc. of liquid is used. The reaction bulb is filled with 75 cc. of a standard solution of indigo-carmine (1.46 g. of the 44/45 per cent powder and 2 cc. of sulphuric acid per liter), the stopper placed in the upper bulb, the apparatus inverted and the burette read. The whole is turned back to the normal position, and the solution to be analyzed is added slowly until the color of the mixture changes from blue to light yellow green. The stopper is re-placed, the apparatus inverted and the burette again read to obtain the amount of bleach liquor added.—C. J. W.

Determination of Chlorate Chlorine in Bleach Liquor. H. Prelinger. Zellstoff u. Papier 8, 294-295 (1928). The ferrous sulphate permanate method for determining chlorates is inadmissable in the case of spent bleach liquor owing to the presence therein of oxidisable organic matter. Satisfactory results may, however, be obtained by determining the chloride chlorine by Volhard's method before and after reduction with sulphurous acid. Active chlorine, if present, should be first quantitatively converted into chloride by alkaline hydrogen peroxide.—C. J. W.

Detection of Sulphur and Sulphurous Acid. A. Noll. Papierfabr. 26, Fest u. Ausland Heft, 59-61 (1928) Sulphur (elementary or in combination) is detected by heating a sample of the substance with an excess of sulphur-free iron powder, dissolving the melt in pure, dilute hydrochloric acid and demonstrating the presence of hydrogen sulphide by its odor or by means of lead acetate paper. Alternately, the acid solution is rendered alkaline and the presence of sulphur shown by means of sodium nitroprusside solution. In testing for sulphurous acid in such materials as half stuff or other products of the cellulose and paper industries, a sample of the material is pulped with distilled water, digested on the water bath, filtered, acidified with hydrochloric acid and chemically pure zinc added. The resulting hydrogen sulphide is recognized as above. Alternately, the aqueous extract of this material is heated on the water bath with zinc powder, whereby the sulphurous acid is converted into hyposulphite, the presence of which is shown by its characteristic reducing action upon solutions or test papers made from indanthrene yellow G, methylene blue or the sodium salt of anthraquinone-beta-sulphonic acid. When the latter are used it is not advisable to heat during the extraction with water, since substances of a reducing nature may thus be extracted, which would give rise to the same color changes with the dye solutions as hyposulphite.—C. J. W.

Hydrogen Ion Concentration

Measurement of Ph and its Application in the Paper Mill. Rudolpf Lorentz. Papierfabr. 26, 365-370, 427-433 (1928). The theory of pH determinations, buffers and methods of measurement are considered. It is important that the pH of fresh and waste waters for process use be known. Since most mill waters contain buffer substances, actual acidity (pH) is a better control than potential acidity (Titration) in most cases. To obtain good results in sizing with rosin, it is necessary that the pH be 7 or over before the size or alum is added.—C. J. W.

Hydrogen Ion Concentration; Its Determination and Relation to the Paper Industry. Arthur St. Klein. Papierfabr. 26, 145-151; Wochbl. Papierfabr. 59, 140-147 (1928). Following a general exposition of the subject, Klein gives his experiences in boiler plant and water purification work, and a good review of articles bearing especially on pulp and paper manufacture.—C. J. W.

Determination of Hydrogen Ion (ph) Value of Paper. B. Schülze. Papierfabr. 26, 629-629 (1928). The significance of hydrogen ion concentration in determining acidity or alkalinity is discussed and general methods of determining pH values are described. The pH value of paper may be found either colorimetrically by the use of indicator papers, graded with respect to their pH range, or of the Wulff colorimeter, or electrolytically by means of electromotive force measurements using a quinhydrone electode. For samples other than raw or parchment papers the colorimeter method is recommended, using an aqueous extract of the paper, while for the exceptions named either the electrilytic or the indicator paper method may be used on the paper itself, without extraction. Parchment papers have pH 3-4.5, while other papers have pH 4.5-9 according to the conditions of manufacture; reason-

able agreement is shown between results obtained by the different methods used.—C. J. W.

Alkaline Processes

Chemistry of the Alkaline Pulp Processes. II. Effect of Temperature on the Rate of Delignification and Hydrolosis of Spruce Wood with Sodium Hydroxide. Mark W. Bray. Forest Products Laboratory, Madison, Wisconsin. Paper Trade J. 87, No. 24, 64-70 (Dec. 6, 1928)—The data obtained indicate that increasing the temperature of digestion within the range between 140 deg. C. and 180 deg. C. increases the velocity of the pulping reaction, but has little effect on the chemical properties of the resulting pulps when the reaction is carried to the same yield. The rates of removal of lignin, of pentosans and of substances other than cellulose do not materially change relative to one another with change of temperature; so that, within the temperature re range of the experiments, pulping to the same yield gives pulps of similar chemical properties regardless of the digestion temperature employed. When the data for the lignin content are plotted against yield of pulp, all conditions except temperature being kept constant, the relationship is linear. The "velocity constants" for lignin, calculated as though the reaction were monomolecular, decrease with time of digestion in a manner similar to that of those obtained from the yield data. With a rise of 10 deg. C. in the pulping temperature, approximately the same yield, the same chemical properties of the resulting pulp, and the same chemical consumption is obtained in half the cooking time. Under the conditions set forth in the article, the order of the reaction appears to be above that of a monomolecular reaction, since constant values are not obtained, either for yield or for lignin, when the proper values are placed in the formula of the molecular reaction. The velocity constants K calculated as though a first order reaction obtained, decrease with time of pulping. The mathematical relationships of these K values, however, indicate that a logarithmic function expresses the reaction within the limits of the experimental work, and that the formulas thus derived may be used for predicting from a single experiment the yields obtainable at any given total time of reaction (all variables other than time remaining constant), provided that such prediction is not carried beyond the experimental evidence.—A.P.-C.

Production of Paper Pulp from Bamboo, Etc. Bird and Co. and E. Spencer. Eng. pats. 383,910 and 283,911 Jan. 20, 1927. No. 283,910. In a semi-continuous process for producing paper pulp from material such as bamboo, grasses wood or reeds in a cascade digestion systems in a close ring in which each digester is charged in turn (the stock in any one being then subjected to a series of treatments with caustic liquor or mixed caustic and sulphide or sulphite liquors, at successively increasing pressures and concentration, followed by bleaching and washing), the digesting liquor after use in any one digester is passed to the digester next-but-one lower in the cycle of operative sequence. The liquor may be blown over by steam pressure and made up with wash water to the desired volume and concentration. No. 283,911. Steam is passed from a digester in which the process is complete into another digester which is being or has been freshly charged to heat the charge and any associated liquor.—A.P.-C.

Hermicellulose of Spruce Wood. Erik Hagglund. Svensk Pappers Tidn. 21, 572-6 (1928). An address on the chemistry of hemcellulose with a review of methods of isolation and determination, and theories of the manner of their occurrence in wood. Haaglund presents the following analysis, showing the composition of spruce wood, with special attention to the hemicellulose obtained in sulphite cooking;

Cellulose, 41.5%

Cellulose, 41.5%, hemicelluloses, 24.3 per cent, made up of 6.3 per cent of difficulty hydrolizable poly saccharides of mannose .29 per cent, xylose, 2.2 per cent, and fuctose, 1.2 per cent; and 18 per cent of easily hydrolyzable polysaccharides of mannose 7.7 per cent, gycose 5.2 per cent galactose 0.7 per cent. furctose 0.7 per cent, xylose (Arabinose) 3.1 per cent, and galactoronic acid 0.6 per cent, lingin 28.0 per cent, acetic acid etc. 2.3 per cent; and rosin, ash, protein and undetermined, 100.0 per cent. Although the author considers it most likely that lignin and the carbohydrates in wood are bound chemically, he does not believe that all the carbohydrates necessarily take part in such unions. C. E. P.

Hemicelluloses. Emil Heuser. Papierfabr. 25, 238-243 (1927). The chemistry of hemicelluloses is reviewed in an address. Methods for the determination of hemicellulose are purely conventional and the results lack uniformity. Beta cellulose from sulphite pulp consists of 78.16% cellulose, 13.68% xylan and 5.64% mannan. Depolymerzied cellulose appears as the chief constituent and the pentosan content is greater than the jexpsam content. In tracts of sulphite pulp yield copper-alkali compounds similar to cellulose. Such compounds, as for instance the xylan copper-alkali compounds, of the composition $(C_5H_8O_4)_2 . Cu(OH)_2 . (NaOH)_2$, are bright blue in color, are soluble in ammonium hydroxide, decompose on drying, giving a green coloration and tend to depolymerize the polysaccharide. The copper hydroxide is assumed to decompose, forming cuprous oxide and oxygen which oxidizes the cellulose or hemicellulose complex. The formation of such compounds indicates a similarity between cellulose and hemicelluloses, which vary greatly depending upon the nature of the cellulosic material. C. J. W.

Carbohydrate Constituents of the Easily Hydrolyzble Hemicellulose of Pine. Erik Hagglund, F. W. Klingstedt, Truls Rosenqvist and Helmut Urban. Inst. for Wood Chem. Abo. Finland. Z. Physiol. Chem. 177, 248-263 (1928). The hemicellulose of pine wood consists of an easily and a difficultyly hydrolyzable portion. If the wood is hydrolyzed by heating under pressure with mineral acid a sugar results which comes partially from the cellulose. Only by diminishing the hydrogen ion concentration by buffering, as is the case with sulphite acid ($NaHSO_3$ in H_2SO_3) can the hemicellulose alone be brought into solution and then only its easily hydrolyzable portion. Analysis of the sugar thus obtained in the sulphite liquor takes for granted that the lignosulphonic acid has been successfully removed. By precipitation with alpha napthylamine it is not possible to effect a quantitative separation. Subsequent treatment of the sugar solution with ethyl alcohol and charcoal yields a solution which contains nearly all of the sugar in a pure state. Precipitation of lignosulphonic acid entails a considerable decrease in reducing power, which indicates a certain reducing power on the part of the lignosulphonic acid. In order to determine whether glucose is present in the sugar of sulphite liquor, the mannose must first be precipitated as the hydrazone. After liberation of the residual sugar with benzaldehyde, glucose was satisfactory demonstrated. Glucuronic acid was not present in the sugar fraction. The presence of glucan in the easily hydrolyzable hemicellulose of pine is thus shown. Mannose, galactose and fructore were also demonstrated. On the basis of rotation of the fermented sugar solution arbainose as well xylose may be present. Galacturonic was found in the ethyl alcohol insoluble fraction. If this acid is derived from a hitherto unknown wood pectin, the amount of such pectin, assuming it to be similar to beet pectin, is estimated as 0.7 per cent of the wood substance. The composition of the easily hydrolyzable hemicellulose, which comprises 18 per cent of the wood, is, after hydrolysis, 17 per cent pentoses, 42.7 mannose, 4.2 per cent galactose, 3.2 per cent galacturonic acid, 4 per cent fructose and 28.9 per cent glucose. C. J. W.

Abitibi Rushing New Office

Steel construction on the new Abitibi Power and Paper Company's new head office on University avenue, Toronto, is now being rushed to completion. The new building is a handsome one and will be in commission in a few months' time.

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Cost Reduction Through Research Department *

By William S. Wheeler, Jr.[1]

Until comparatively recent years art, science and industry were accepted as three separate and distinct fields of human activity. Art was always for art's sake, science was for the scientist, and industry went its own sweet way making and selling things for profit. Under the growing pressure of competition industry's way has become less sweet and we have seen it call in the artist and the scientist,—the former to assist in selling the ever increasing production, and the latter to help reduce production costs by refining processes and eliminating waste. We are all aware of the brilliant success of this three-sided partnership, but we are apt to overlook the agency which makes art and science effective in industry. This agency is research and by "research" I mean systematic investigation, fact-finding and interpretation.

The artist knows little about the needs of industry. We have advertising agencies to bring art and industry together, and within the industrial organization we have Sales Research or Sales Promotion Departments to determine how art can best serve the needs of that organization. In a like manner, science must be applied to industrial needs through the intermediate aid of research. In the field of science the counterpart of the advertising agency is the Industrial Laboratory and the consulting engineer, while corresponding to internal Sales Research and Sales Promotion we have the Technical Research Department.

A Popular Misconception

Before going further I should like to make some reference to what I believe is a rather popular misconception. Research whether fundamental or applied, is not to be identified with science alone. All science involves research, but all research does not involve science. It is simply a logical fact-finding method and as such has application in any field where a knowledge of what we are doing is of value.

The cost accountant of today might be called the bookkeeper of yesterday plus research. Cost systems have gone out of the ledgers and into the factory in an attempt to answer the eternal "why" and "what can we do about it." Time Study departments have gone to the machines from the time clocks to answer the same questions about manpower by the research method.

In the sense that industry has in the past progressed by the solution of problems that confronted it from day to day, it has been applying research since its very beginning—superficial and haphazard possibly, but still—research. In the days of the one-man or "line" organization, how much time or what facilities did the manager, superintendent or foreman have for making systematic study of factory problems? What could the bookkeeper learn about operating costs from the invoices, inventories and payroll sheets that came to his desk? Industry has been forced into merger, mass production, and functional control. Specialized departments have taken over practically all the duties of the old boss, excepting administration which always was and always should be his job. These departments now have the time, training and facilities necessary to carry on systematic study with the result that even with greatly increased overhead, unit costs have been reduced in every branch of industry. In other words, the research method in each phase of manufacturing has much more than paid its own way.

First Functional Control

In the development of functional control attention was first directed toward production planning, time study and cost finding. These functions deal essentially with the quantity of production and the time and money spent on that quantity. But what of the quality of the product and the process technique by which it was produced? Quality control is one of the last functions of management to be assigned to a specialized department. Chemical industries which were born and bred in the laboratory, and such industries as owe their existence to modern science and engineering are necessarily operated under exacting technical control of raw materials, processes and products. But there are some that are older than science itself which, like Topsy, have "just growed." Notable among these is the textile industry which is nowadays so frequently pointed out as a horrible example of "splendid isolation." The new highly technical rayon industry has brought textiles in general, back into the good graces of science, but cotton, silk and wool have far to go before they can stand alone and unashamed.

However, recent mergers and the growth of individual organizations have given birth to an increasing number of mill laboratories and Research Departments. No small factor in this development has been the keener interest of both retail stores and the consuming public in why an article is worth the price, and when the buying public takes that attitude it can sometimes ask embarrassing questions of the seller who is unprepared to answer—and the seller of textiles is no exception.

Development of Research Department

If technical control through science and research needs further defense I am sure Mr. Stevenson, who represents one of our foremost industrial laboratories, is far better qualified than I am to defend its position. I shall therefore, confine my discussion to

* N. A. C. A. Bulletin.
[1] Research Director, McCallum Hosiery Co., Northampton, Mass.

the development and operation of our own Research Department, because after all, while the research man cares more for the chase, his employer and those as yet unconvinced have a perfect right to center their interest on the game bag.

Raw silk is a very costly and capricious raw material and the processing of it requires highly skilled and highly paid workers. The resulting silk hosiery is therefore, a costly product and each defective pair entails a considerable loss. Seconds may be caused anywhere in the chain of operations and "once a second always a second." Since cure after detection is impossible, prevention becomes doubly important.

In 1924 there was a raw silk laboratory in our Throwing Mill where the silk is prepared for knitting. Here the raw material was tested and selected by people who had little knowledge of what happened to it after it left that department. At the other end of the process we had the Final Inspection Department where a varying percentage of the finished hosiery was thrown into "seconds by people who knew little about what caused the defects. Between these two extremes there was other quality testing and inspection such as is found in any organization, but no complete picture of quality was possible with the agencies of quality control operating independently, each in a kingdom of its own. It was obvious to the management that reduction of seconds was possible only with effective quality control, and this required the co-ordination of the various elements of control to bring cause and effect under the same roof for study.

The establishment of the Research Department meant little more than bringing existing testing activities and equipment together with only slight additional expense. But a laboratory full of shiny instruments plays no more part in quality control than an adding machine in cost finding. We could not bring the mill into the laboratory so we had to make a laboratory out of the mill, and no superintendent is allowing anyone to make a laboratory out of his mill unless he sees some reason for it . This is lesson number one for any Research Department—it must be of some service to those from whom it expects to get co-operation. New fangled ideas choke when crammed down the throat.

In many well-managed mills there are no juicy, cost reduction plums lying around on the floor waiting to be picked up. We needed a lot of information and help from every department before we could be of much use to others. But with the existing facilities we could make comparative wear tests and analyze competitive products for the Sales Department, identify and sort out mixed yarns, and do innumerable other odd jobs for every department in the factory, determine the quantity of materials in proposed new products for the Cost and Production Departments, and follow through mill-run tests of certain raw silks for the Purchasing Department to determine their suitability.

Seeking to Ambush Losses

While carrying on what might be called the service and publicity phases of the work, we were looking for strategic points from which to ambush losses. The place to catch a thief is in the dining room with his hands full of silver ware, but the results are the same if you can collar him as he leaves by the back door. To make significant tests on all the silk before buying it, and then to test again after every operation up to the final inspection of hosiery would be one way to catch defective work red-handed. But that was out of the question, so we went directly to the Inspection Department and worked out a form of inspection ticket which showed a classification of seconds by causes. This was the first step in making a laboratory out of the mill and constituted our most valuable ambush. Daily records from the Inspection Department brought both cause and effect into the laboratory for study.

I said that we classified seconds by causes, but if that were literally true we could have stayed in the office and pointed out the sources of avoidable loss. I should have called it a classification by types of defects for we began to find that certain defects were traceable directly to one operation but indirectly to either a previous operation or to some hidden characteristic in the raw silk itself.

Such findings gave us our clues to the location of other ambushes. We needed more significant tests on the raw silk to predetermine its suitability for a particular use. Then, because many things can happen to the silk in the preparatory operations and because the silk yarn must go to the knitting machines in the best possible condition to prevent needless loss of time, waste of material and inferior product, we needed tests at this point in the process which would make it impossible for defective yarns to go farther.

When each new test had been in routine operation for a period of time we were able, by tabulation of the results, to set working quality standards and limits for that particular test. Then, by comparison of the various tests with the standards, any abnormal condition was at once revealed.

We now had the means of knowing and exercising some control over quality at the important stages in the process. We were testing samples of silk before buying, again after delivery at the mill, and again before being knitted into hosiery. One might well remark that from all appearances we were making more tests than stockings, but testing is cheap compared to hosiery and a few pairs saved from the seconds pile will pay for a lot of testing.

A Routine Testing Case

Perhaps the best illustration of the value of routine testing was a case a few years ago. In testing certain lots of dyed silk before they went to the knitting department we found an unusually snarled and chafed condition in the skeins which from past experience we knew would cause no end of trouble in knitting, as well as a high percentage of seconds in finished goods. However, by finding it in time we were able to put the silk to another use where its condition did not affect the processing or product. By further investigation we discovered that the cotton lacing strings which hold the skeins in place had been cut shorter than usual. This alone would have been the direct cause of many hundreds of dollars loss, and yet the lacings had been cut shorter in a branch Throwing Mill to save a few cents worth of cotton string. Supposing we had not diverted these damaged lots, or been able to quickly trace the defect to its original source, this branch department would have continued for some time content with the thought that it was showing a penny-a-week reduction in lacing string cost, while the superintendent of the Knitting Mill would certainly have been called on the carpet periodically to explain an excessive percentage of seconds and high waste in his department. Tangible cost reduction in one department may crop up as huge losses elsewhere, but the connecting link is very apt to be missing without complete quality control and continuous research.

I was in New York only last week at the invitation of a large retail store buyer to discuss the technical details of hosiery construction with him and a representative of a retail association testing laboratory. This buyer is only one of a growing number who intends to buy merchandise more on the basis of quality specifications and less on salesman's personality. Industry is far ahead of the retail trade in buying its materials on definite specifications but the practice is spreading rapidly into both retail and even consumer buying. Advertising is educating people to buy specific qualities for specific purposes. We are being told to buy "seven-bearing crank-shafts" and "small-bubble lather"; not automobiles and shaving cream. Industry's own advertising forces it to buy on specification, manufacture to quality standards and be prepared to sell on specification.

There are probably few organizations that are not buying their raw materials on some sort of specifications but I will venture to say that there are many purchasing agents who cannot tell why they insist on those specifications. In a paper which I read last spring at a silk technical conference in Japan I made the statement that American silk manufacturers who know their business are no longer buying silk—they buy silk evenness, silk cleanness, silk

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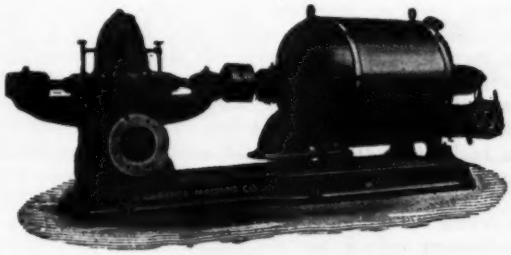

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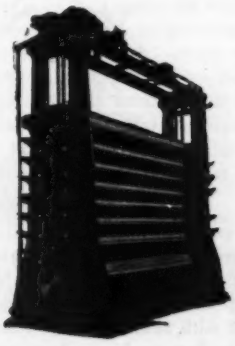


strength, etc. In other words, they know through research the particular characteristics a silk must have for a particular purpose.

A Case in Point

Here is a case in point: A year ago we were making an especially high grade stocking. The cost was extremely high because of an almost prohibitive percentage of seconds and yet we were using the most expensive silk in the American market. A great majority of seconds was found to be due to a cause which reverted to a single characteristic in the raw silk itself. While in Japan last summer I was able to convince some of the Japanese raw silk reelers that if they could improve that one characteristic we could pay more than market price. The result has been a very satisfactory reduction in seconds with a corresponding cost reduction in spite of the high raw silk price. I wonder if there are not other organizations that could save money by spending it, if they knew more about cause and effect in the factory.

There has been much discussion about how large a company should be before it could afford a Research Department. No company can afford any department that does not at least pay for itself. Organizations like the General Electric Company and Eastman Kodak can support large staffs of scientific men for fundamental as well as applied research. Smaller companies can afford only the technical personnel and equipment necessary to handle the every day problems of quality control. For these smaller organizations the industrial laboratory and consultant are courts of higher appeal to whom special problems can be taken for final solution.

For many years we have been using a white felt covering for wooden cones on which silk is wound damp for knitting. There were in the past constant complaints that this felt became "dirty" after a few days in process. Two boys worked full time recovering the cones until a microscopic examination of the felt proved the "dirt" to be a black mold which soon stained silk wound on it. Having no bacteriologist on our staff we took the problem in a semi-finished state to an industrial laboratory and soon got a report that the formation of mold could be greatly retarded by simply putting the felt through a bleach bath before using it. A few preliminary tests in the mill proved successful, so we requested the suppliers of the felt to bleach it before shipping to the mill, thereby saving at least the full wages of one boy. We very seldom need the services of a bacteriologist and therefore could hardly afford to keep one on the staff. But the industrial laboratories have trained specialists in all branches of science whose services are an important factor in cost reduction for those who have the means of knowing when they need a specialist. Every man should know enough to know when he needs a lawyer.

Into the Field of Selling Costs

I have dealt so far with the value of a research department in reducing manufacturing costs through quality control, but, its effectiveness goes outside the mill into the field of selling costs. An old adage tells us that goods well bought are half sold. If the goods happen to be the raw materials of industry they must also be well manufactured before they are half sold. What constitutes the other half of selling is left to the imagination but the overcoming of sales resistance probably accounts for a considerable share. Advertising carries on an endless battle with sales resistance but the most elaborate campaign ever launched might fail to overcome the resistance of a person who has had sad experiences with the product itself. Adequate quality control in the mill cannot help but lead to greater uniformity in the product and consequently improved consumer acceptance in the trade.

Maintenance of Good Will

I recall an incident of a few years ago that illustrates the part played by a research department in the maintenance of good will. We were making a white stocking with red heels such as were worn a few summers ago. The heels, of course, had to be dyed with absolutely fast color or the stockings would be ruined in the first washing. In our routine of testing dyed silks before knitting, we subjected a sample of every lot to a rather severe washing test. Several lots of this bright red went through without trouble before one came in that fairly bled itself to death in even luke-warm water. By some oversight in the dye house it was not dyed a fast red, so was promptly sent back for re-dying. There was enough silk in this lot to make over one thousand pairs of stockings which might have later been sold at $3.00 a pair to one thousand women who would wear them once, wash them, and throw them away. The production reports, cost records and finished goods inspection would not have shown up a defect of this type, but the 1,000 buyers would certainly have had just cause for complaint. I have no idea how much it would cost in advertising to win back a thousand women and their 5,000 friends, but whatever it might be, a three minutes test in the research department unquestionably averted a very positive loss of good will.

In conclusion I will say that our research department is by no means in a position to sit back and watch production flow through the filters of quality control. There will always be work ahead for a department that makes a business of looking for trouble and there will always be further refinements of processes and improvements in quality to be made. But if the department more than pays for itself in tangible cost reductions it justifies its existence without more than scratching the surface of its possibilities. Manufacturers who have not yet seen the need for technical control in their organizations will sooner or later be pushed into it just as surely as their own advertising is rapidly teaching the public to buy value instead of price.

Plans for Woodlands Section Meeting

GLENS FALLS, N. Y., July 29, 1929.—The summer meeting of the Woodlands section of the Canadian Pulp and Paper Association will be held August 4 extending through the entire week and the program which has been arranged includes a visit to the plant of Finch, Pruyn & Co., and a banquet at the Queensbury Hotel, where the party will remain overnight. The convention will be opened at the Lake Harris House, Newcomb, on August 4. The following day the association members will go to the lumbering camp of Finch, Pruyn & Co., near Newcomb, returning to the Lake Harris House to spend the evening.

The next day the lumbermen will visit the Indian Lake operations of Finch, Pruyn & Co., and in the afternoon they will journey to Glens Falls in automobiles. A stop will be made at the Charles Lathrop demonstration forest at Warrensburg after which the party will continue to this city, where the news print mill of Finch, Pruyn & Co. will be inspected. On Wednesday morning the lumbermen will leave for Saratoga to visit the forest nurseries, following which they will proceed to New Hampshire and other New England States where the remainder of the convention will be held.

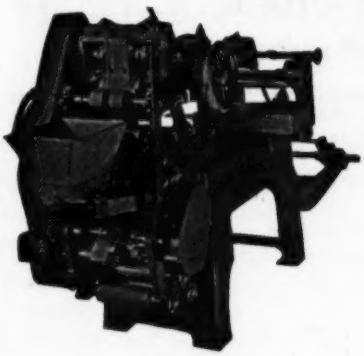
Japanese Paper Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 17, 1929.—The Japanese Paper Manufacturers' Association reports a production of 60,827 tons of paper during the month of April, thus bringing the total for the four months period up to 234,661 tons. Sales during the same periods amounted to 56,109 tons and 230,144 tons respectively. News print paper represents about one-half of the total production, while other foreign style printing papers account for another 25 per cent.

The association reports wood pulp production of its mills during 1928 as reaching 635,632 tons of which 347,222 tons represented sulphite pulp, 265,667 tons mechanical pulp, and 22,743 tons kraft (sulphate) pulp.

The total production exceeded that of the preceding year by approximately 35,000 tons, the output of sulphite pulp having increased by 25,000 tons and kraft pulp by 13,000 tons while mechanical pulp shows a reduction of 3,000 tons. Estimated production for the current year is placed at 712,800 tons, comprising 377,500 tons of sulphite, 305,400 tons of mechanical pulp, and 29,900 tons of kraft pulp.



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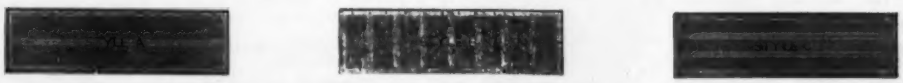

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NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JULY 27, 1929

SUMMARY

Cigarette paper .....599 cs.
Wall paper .....129 bls., 20 cs.
Paper hangings .....18 bls., 28 cs.
News print .....1,398 rolls
Printing paper .....141 cs.
Wrapping paper .....6 bls., 114 cs.
Condenser tissue paper .....2 cs.
Drawing paper .....18 rolls, 26 cs.
Filter paper .....54 bls., 53 cs.
Colored paper .....25 cs.
Marble paper .....11 cs.
Metal paper .....20 cs.
Surface coated paper .....71 cs.
Baryta coated paper .....183 cs.
Coated paper .....61 cs.
Gold coated paper .....8 cs.
Photo paper .....10 cs.
Tissue paper .....130 cs
Decalcomania paper .....17 cs.
Writing paper .....36 cs.
Transparent paper .....31 cs.
Stencil paper and ink .....43 cs.
Envelopes .....22 cs.
Blue print paper .....3 cs.
Paste board .....29 cs.
Straw board .....274 rolls
Miscellaneous paper....213 rolls, 28 bls., 261 cs.

CIGARETTE PAPER

P. J. Schweitzer, Pres. Polk, Marseilles, 135 cs.
American Tobacco Co., Roussillon, Bordeaux, 400 cs.
Liggett & Myers Tobacco Co., Roussillon, Bordeaux, 6 cs.
Max Spiegel & Son, Roussillon, Bordeaux, 8 cs.
British American Tobacco Co., Aquitania, Southampton, 50 cs.

WALL PAPER

A. C. Dodman, Jr., Inc., Aquitania, Southampton, 10 cs.
F. J. Emmerich, Aquitania, Southampton, 1 cs.
S. H. Pomerance & Co., Aquitania, Southampton, 1 cs.
W. H. S. Lloyd & Co., Amer. Shipper, London, 1 ble.
F. J. Emmerich, Westphalia, Hamburg, 2 bls., 1 cs.
The Prager Co., Inc., Belgenland, Antwerp, 101 bls.
S. Stern Stiner Co., St. Louis, Hamburg, 3 bls.
F. J. Emmerich, St. Louis, Hamburg, 8 bls.
J. E. Bernard & Co., St. Louis, Hamburg, 9 bls.
Phoenix Shipping Co., St. Louis, Hamburg, 2 cs.
A. C. Dodman, Jr., Inc., America, Bremen, 5 bls.
Universal Car Loading Co., Pres. Harding, Bremen, 2 cs.
Thomas & Pierson, Homeric, Southampton, 2 cs.
Stone Gross Co., Homeric, Southampton, 1 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Baltic, Liverpool, 5 cs.
W. H. S. Lloyd & Co., Minnekahda, London, 18 bls.
Whiting & Patterson Co., Inc., Homeric, Southampton, 4 cs.
Whiting & Patterson Co., Inc., Aquitania, Southampton, 6 cs.
F. L. Kramer & Co., Aquitania, Southampton, 13 cs.

NEWS PRINT

Parsons & Whittemore, Inc., Berlin, Bremen, 513 rolls.
Parsons & Whittemore, Inc., Sagauche, Kotka, 676 rolls.
Hudson Trading Co., Kolsnaren, Sundsvall, 209 rolls.

PRINTING PAPER

Public National Bank, Estrella, Marseilles, 37 cs.
E. Dietzgen & Co., Inc., N. Amsterdam, Rotterdam, 62 cs.
E. Dietzgen & Co., Inc., St. Louis, Hamburg, 19 cs.
Oxford University Press, Laconia, Liverpool, 12 cs.
Martin & Bechtold, Pres. Harding, Bremen, 11 cs.

WRAPPING PAPER

Standard Products Corp., Belgenland, Antwerp, 15 cs.
Birn & Wachenheim, Belgenland, Antwerp, 99 cs.
Eastchester Paper & Cordage Co., St. Louis, Hamburg, 6 bls.

CONDENSER TISSUE PAPER

Parsons & Whittemore, Inc., Laconia, Liverpool, 2 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., Minnekahda, London, 3 cs.
Keuffel & Esser Co., St. Louis, Hamburg, 18 rolls, 23 cs.

FILTER PAPER

C. Schleicher & Schull Co., Westphalia, Hamburg, 39 cs.
H. Reeve Angel & Co., Inc., Minnekahda, London, 11 cs.
H. Reeve Angel & Co., Inc., Homeric, Southampton, 54 bls., 3 cs.

COLORED PAPER

Whiting & Patterson Co., Inc., Berlin, Bremen, 3 cs.
H. D. Catty Co., Belgenland, Antwerp, 2 cs.
Borden Riley Paper Co., Belgenland, Antwerp, 1 cs.
W. Bersch, St. Louis, Hamburg, 3 cs.
F. L. Kramer & Co., Pres. Harding, Bremen, 1 cs.
S. Gilbert, Pres. Harding, Bremen, 15 cs.

MARBLE PAPER

E. Daiber, Belgenland, Antwerp, 11 cs.

METAL PAPER

Hensel, Bruckman & Lorbacher, Westphalia, Hamburg, 8 cs.
Hensel, Bruckman & Lorbacher, Berlin, Bremen, 12 cs.

SURFACE COATED PAPER

Globe Shipping Co., Westphalia, Hamburg, 19 cs.
Gevaert Co. of America, Belgenland, Antwerp, 33 cs.
L. de Jonge Co., St. Louis, Hamburg, 15 cs.
Phoenix Shipping Co., St. Louis, Hamburg, 4 cs.

BARYTA COATED PAPER

Globe Shipping Co., Berlin, Bremen, 183 cs.

COATED PAPER

Globe Shipping Co., Pres. Harding, Bremen, 61 cs.

GOLD COATED PAPER

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PHOTO PAPER

J. H. Schroeder Banking Corp., Berlin, Bremen, 10 cs.

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Old Master Paper & Pulp Co., St. Louis, Hamburg, 127 cs.

DECALCOMANIA PAPER

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Phoenix Shipping Co., St. Louis, Hamburg, 1 cs.
C. W. Sellers, Pres. Harding, Bremen, 7 cs.

WRITING PAPER

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Nepaco Paper Co., Waukegan, Havre, 11 cs.
Distinctive Writing Paper Co., Aquitania, Southampton, 4 cs.
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PASTE BOARD

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STRAW BOARD

C. H. Powell, N. Amsterdam, Rotterdam, 101 rolls.
Perkins, Goodwin & Co., N. Amsterdam, Rotterdam, 164 rolls.
A. Vuyk, N. Amsterdam, Rotterdam, 9 rolls.

MISCELLANEOUS PAPER

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Japan Paper Co., Roma, Genoa, 9 cs.
——, Westphalia, Hamburg, 28 bls.
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Globe Shipping Co., Bremen, Bremen, 4 cs.
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Equitable Trust Co., Caledonia, Glasgow, 24 bls. rags.
American Express Co., Caledonia, Glasgow, 25 bls. rags.
Brown Bros. & Co., Caledonia, Glasgow, 138 bls. rags.
Anglo South American Trust Co., Caledonia, Glasgow, 136 bls. rags.
E. J. Keller Co., Inc., Caledonia, ——, 56 bls. rags.
Castle & Overton, Inc., Hellig Olav, Copenhagen, 62 bls. rags.
Equitable Trust Co., Hellig Olav, Copenhagen, 81 bls. rags.
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Darmstadt, Scott & Courtney, Estrella, Barcelona, 69 bls. rags.
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H. G. Lichtenstein, Estrella, Barcelona, 361 bls. rags.
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Trust Co. of N. America, Baltic, Liverpool, 46 bls. bagging.
Castle & Overton, Inc., Sacandaga, Antwerp, 255 bls. rags.
Star Woolen Co., Sacandaga, Antwerp, 5 bls. rags.
American Express Co., Sacandaga, Antwerp, 29 bls. rags.
Brown Bros. & Co., N. Amsterdam, Rotterdam, 33 bls. rags.
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Guaranty Trust Co., St. Louis, Hamburg, 40 bls. rags.
A. W. Fenton, Inc., America, Bremen, 32 bls. rags.
Darmstadt, Scott & Courtney, Hague Maru, Kobe, 318 bls. rags.
Brown Bros. & Co., Marengo, Newcastle, 81 bls. bagging.
Brown Bros. & Co., Marengo, Newcastle, 261 bls. rags.
Equitable Trust Co., Marengo, Newcastle, 20 bls. rags.
Bank of The Manhattan Co., Marengo, Newcastle, 10 bls. rags.
Castle & Overton, Inc., Marengo, Antwerp, 130 bls. bagging.
Darmstadt, Scott & Courtney, Marengo, Antwerp, 100 bls. jute waste.
Royal Manfg. Co., Marengo, Antwerp, 89 bls. cotton waste.
Overton & Co., Marengo, Antwerp, 366 bls. bagging.
W. Steck & Co., Marengo, Antwerp, 94 bls. jute card waste.
G. W. Millar & Co., Marengo, Antwerp, 61 bls. thread waste.

(*Continued on page 68*)

Ticonderoga Machine Works
Ticonderoga, N. Y., U. S. A.
MANUFACTURERS OF
WARREN IMPROVED CALENDER DOCTORS
With Flexible Blades, Universal Adjustment and Control
(PATENTED)
WARREN IMPROVED PATENT DOUBLE DRUM WINDERS
Patent BALL VALVE Hydrant
Stock Circulating Systems and
other Paper Mill Specialties
SEND FOR OUR BULLETIN

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Consulting Engineer
Member Am. Soc. C. E.—Member Am. Soc. M. E.
Member Eng. Inst., Can.—Member A. I. E. E.
PULP, PAPER, AND FIBRE MILLS
HYDRO-ELECTRIC AND STEAM
POWER PLANTS
PLANS-SPECIFICATIONS-EVALUATIONS
REPORTS - CONSULTATIONS
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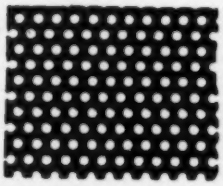
BURRS BURRS

The Lindsay Wire Weaving Co.
14025 Aspinwall Avenue, Cleveland, Ohio
Manufacturers of
Lindsay Longcrimp and Spiral Weave Fourdrinier Wires
These wires are making records in large production of paper

Perforated Metal Screens
For Pulp and Paper Mills



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Yellow Ochres,
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Imports of Paper and Paper Stock

(*Continued from page 66*)

Katzenstein & Keene, Inc., Marengo, Antwerp, 133 bls. rags.
Katzenstein & Keene, Inc., Marengo, Antwerp, 57 bls. bagging.
Irving Trust Co., Marengo, Antwerp, 114 bls. flax waste.
S. Birkenstein & Son, Marengo, Antwerp, 106 bls. jute waste.
I. Cohen & Son, Pres. Harding, Bremen, 6 bls. rags.
A. W. Fenton, Inc., Pres. Harding, Bremen, 44 bls. rags.
E. J. Keller Co., Inc., Pres. Harding, ——, 31 bls. rags.
P. Berlowitz, Byron, Alexandria, 160 bls. rags.
E. Butterworth & Co., Inc., Byron, Alexandria, 293 bls. rags.
E. J. Keller Co., Inc., Karachi Maru, ——, 23 bls. threads.
E. J. Keller Co., Inc., Karachi Maru, ——, 2 bls. rags.
S. Birkenstein & Son, Karachi Maru, Hamburg, 44 bls. jute card waste.
Banco Com'l Italiane Trust Co., Karachi Maru, Hamburg, 16 bls. rags.
Castle & Overton, Inc., Karachi Maru, Hamburg, 16 bls. rags.
G. W. Millar & Co., Waukegan, Dunkirk, 65 bls. flax thread waste.
V. Galaup, Waukegan, Dunkirk, 34 bls. rags.
E. J. Keller Co., Inc., West Amargosa, ——, 123 bls. rags.
A. W. Fenton, Inc., West Amargosa, Bordeaux, 377 bls. rags.
Banco Com'l Italiane Trust Co., West Amargosa, Bordeaux, 57 bls. rags.
D. I. Murphy, West Amargosa, Bordeaux, 191 bls. rags.
W. Schall & Co., Gisla, Barcelona, 255 bls. rags.
Philadelphia National Bank, Gisla, Leghorn, 150 bls. rags.
French American Banking Corp., Gisla, Leghorn, 376 bls. rags.
French American Banking Corp., Gisla, Genoa, 85 bls. rags.
Brown Bros. & Co., Gisla, Genoa, 75 bls. rags.
Banco Com'l Italiane Trust Co., Gisla, Genoa, 50 bls. rags.
Castle & Overton, Inc., Gisla, Genoa, 53 bls. rags.
Castle & Overton, Inc., London Corporation, England, 18 bls. rags.
Castle & Overton, Inc., Seattle Spirit, Germany, 67 bls. rags.
Castle & Overton, Inc., F. J. Luckenbach, Japan, 50 bls. rags.

OLD ROPE

Castle & Overton, Inc., Caledonia, Glasgow, 44 coils.
Brown Bros. & Co., H. Jaspar, Antwerp, 63 coils.
Brown Bros. & Co., Estrella, Barcelona, 104 coils.
Brown Bros. & Co., Estrella, Marseilles, 53 coils.
Brown Bros. & Co., Westphalia, Hamburg, 70 bls.
Equitable Trust Co., Westphalia, Hamburg, 230 coils.
Brown Bros. & Co., N. Amsterdam, Rotterdam, 100 coils.
Brown Bros. & Co., Belgenland, Antwerp, 77 coils.
Brown Bros. & Co., Pres. Harding, Bremen, 72 coils.
W. Schall & Co., Sac City, Rotterdam, 47 bls.
E. Butterworth & Co., Inc., Hoxie, Cardiff, 35 coils.
Brown Bros. & Co., Hoxie, Cardiff, 207 coils.
A. H. Searle, Hoxie, Cardiff, 601 coils.
Brown Bros. & Co., Gisla, Huelva, 430 coils, 39 bls.

CASEIN

Atterbury Bros., Inc., Sud Africano, Buenos Aires, 834 bags, 50,040 kilos.
Central Union Trust Co., Sud Africano, Buenos Aires, 250 bags, 15,000 kilos.

CHINA CLAY

J. Richardson & Co., Boston City, Fowey, 306 tons, 8 cwt.
Atlantic National Bank, Boston City, Fowey, 50 tons, 2 cwt.

WOOD PULP

Bank of Nova Scotia, Gypsum King, Windsor, 131 tons wood pulp.
——, Westphalia, Hamburg, 860 bls. wood pulp, 172 tons.
Johanson, Wales & Sparre, Inc., Kolsnaren, Sundsvall, 425 bls. sulphite.
——, Sagauche, Kotka, 700 bls. sulphite, 116 tons.
——, St. Louis, Hamburg, 381 bls. wood pulp, 76 tons.
G. S. Kerr & Co., Ltd., Dago, St. Albans, 1,177 cords wood pulp.
——, Bockenheim, Hernosand, 8,550 bls. wood pulp, 1,445 tons.
Bulkley, Dunton & Co., Bockenheim, ——, 1,950 bls. wood pulp, 300 tons.
M. Gottesman & Co., Inc., Bockenheim, Iggesund, 750 bls. sulphite, 150 tons.
M. Gottesman & Co., Inc., Bockenheim, Iggesund, 1,250 bls. sulphate, 250 tons.
Pagel, Horton & Co., Inc., Bockenheim, Gefle, 7,500 bls. sulphite.
Bulkley, Dunton & Co., Bockenheim, ——, 1,625 bls. wood pulp.
Scandinavian Pulp Agency, Inc., Bockenheim, Skutskar, 3,200 bls. wood pulp.
Stora Kopperberg Corp., Bockenheim, Skutskar, 1,030 bls. wood pulp.
Bulkley, Dunton & Co., Gripsholm, ——, 150 bls. wood pulp.

WOOD FLOUR

Schmalz Co., Inc., N. Amsterdam, Rotterdam, 200 bags.

PORTLAND IMPORTS

WEEK ENDING JULY 27, 1929

——, Sagauche, Helsingfors, 5,130 bls. sulphite, 830 tons.
Lagerloef Trading Co., Sagauche, Helsingfors, 912 bls. wood pulp, 152 tons.
——, Sagauche, Kotka, 1,536 bls. sulphite, 256 tons.
The Borregaard Co., Inc., Sagauche, Sarpsborg, 750 bls. sulphate, 125 tons.
The Borregaard Co., Inc., Sagauche, Hurum, 1,650 bls. sulphate.
J. Anderson & Co., Sagauche, Sarpsborg, 1,530 bls. sulphite, 255 tons.
Waterfalls Paper Mills Co., Sagauche, Gothenburg, 2,500 bls. wood pulp, 507 tons.
Waterfalls Paper Mills Co., Sagauche, Sarpsborg, 2,292 bls. sulphite, 382 tons.

BALTIMORE IMPORTS

WEEK ENDING JULY 27, 1929

Congoleum Nairn Co., West Amargosa, Bordeaux, 1,102 bls. rags.
Brown Bros. & Co., West Amargosa, Bordeaux, 45 bls. rags.
Katzenstein & Keene, Inc., West Amargosa, Bordeaux, 204 bls. rags.
——, Bockenheim, Hernosand, 4,704 bls. wood pulp, 795 tons.
M. Gottesman & Co., Inc., Bockenheim, Iggesund, 3,225 bls. sulphite, 645 tons.
Castle & Overton, Inc., Paraguay, Germany, 2,519 bls. wood pulp.
Bulkley, Dunton & Co., Hannover, ——, 250 bls. wood pulp.
Bulkley, Dunton & Co., Westerdyk, ——, 600 bls. wood pulp.
Bulkley, Dunton & Co., Beemsterdyk, ——, 600 bls. wood pulp.
Bulkley, Dunton & Co., Somerville, ——, 6,400 bls. wood pulp.

NEWPORT NEWS IMPORTS

WEEK ENDING JULY 27, 1929

Bulkley, Dunton & Co., Somerville, ——, 3,000 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JULY 27, 1929

Darmstadt, Scott & Courtney, Sacandaga, Antwerp, 170 bls. jute card waste.
Castle & Overton, Inc., Sacandaga, Antwerp, 117 bls. rags.
F. Weber & Co., Sacandaga, Antwerp, 11 cs. drawing paper.
G. W. Millar & Co., Sacandaga, Antwerp, 68 bls. rags.
E. Butterworth & Co., Inc., Sacandaga, Antwerp, 63 bls. bagging.
E. Butterworth & Co., Inc., Sacandaga, Antwerp, 165 bls. rags.
S. E. Ingber, Sacandaga, Antwerp, 127 bls. rags.
Philadelphia National Bank, Sacandaga, Antwerp, 254 bls. rags.
——, Sacandaga, Antwerp, 256 bls. rags.
Whaling Waste Products Co., Sacandaga, Antwerp, 298 bls. jute waste.
Corn Exchange Bank, Sacandaga, Antwerp, 65 bls. rags.
S. Birkenstein & Son, Sacandaga, Antwerp, 49 bls. rags.
D. I. Murphy, Sacandaga, Antwerp, 131 bls. rags.
Union Waste Co., Sacandaga, Antwerp, 42 bls. rags.
M. Friedman & Co., Sacandaga, Antwerp, 40 bls. rags.
Stora Kopperberg Corp., Kolsnaren, Skutskar, 1,200 bls. wood pulp.
Scandinavian Pulp Agency, Inc., Kolsnaren, Skutskar, 2,000 bls. wood pulp.
Pagel, Horton & Co., Inc., Kolsnaren, Gefle, 1,000 bls. sulphite.
Bulkley, Dunton & Co., Kolsnaren, ——, 750 bls. sulphite.
M. Gottesman & Co., Inc., Kolsnaren, Sundsvall, 1,200 bls. sulphite.
Castle & Overton, Inc., Kolsnaren, Sundsvall, 300 bls. sulphite.
Johanson, Wales & Sparre, Inc., Kolsnaren, Sundsvall, 600 bls. sulphite.
Perkins, Goodwin & Co., Kolsnaren, Sundsvall, 500 bls. sulphite.
Scandinavian Pulp Agency, Inc., Kolsnaren, Sundsvall, 500 bls. sulphite.
J. Andersen & Co., Inc., Sagauche, Sarpsborg, 600 bls. sulphite, 100 tons.
Wolf Bros., Sagauche, Gothenburg, 100 rolls paper.
Paper Manfg. Co., Sagauche, Gothenburg, 10 bls., 280 rolls paper.
Castle & Overton, Inc., Waukegan, Havre, 504 bls. rags.
J. M. Hagy Waste Co., Waukegan, Havre, 24 bls. rags.
A. Hurst & Co., Waukegan, Havre, 56 bls. rags.
V. Galaup, Waukegan, Havre, 60 bls. rags.
G. Mathes & Co., Waukegan, Havre, 59 bls. rags.
D. I. Murphy, Waukegan, Havre, 1,042 bls. rags.
Salomon Bros. & Co., Waukegan, Havre, 58 bls. rags.
E. Mayer, Waukegan, Dunkirk, 100 bls. rags.
V. Galaup, Waukegan, Dunkirk, 70 bls. rags.
D. I. Murphy, Waukegan, Dunkirk, 111 bls. rags.
G. Mathes & Co., Waukegan, Dunkirk, 27 bls. rags.
Katzenstein & Keene, Inc., Waukegan, Dunkirk, 318 bls. rags.
Darmstadt, Scott & Courtney, Waukegan, Dunkirk, 94 bls. rags.
Castle & Overton, Inc., West Amargosa, Bordeaux, 262 bls. rags.
G. Mathes & Co., West Amargosa, Bordeaux, 62 bls. rags.
S. E. Ingber, West Amargosa, Bordeaux, 244 bls. rags.
E. Mayer, West Amargosa, Bordeaux, 114 bls. rags.
Katzenstein & Keene, Inc., West Amargosa, Bordeaux, 148 bls. rags.
D. I. Murphy, West Amargosa, Bordeaux, 186 bls. rags.
D. I. Murphy, Tagliamento, Leghorn, 114 bls. rags.
Southwark National Bank, Tagliamento, Leghorn, 30 bls. rags.
E. J. Keller Co., Inc., Estrella, ——, 85 bls. rags.
Castle & Overton, Inc., Cabo Torres, Spain, 93 bls. rags.
Castle & Overton, Inc., Ulm, Germany, 90 bls. bagging.
Castle & Overton, Inc., Ulm, Germany, 142 bls. rags.
Castle & Overton, Inc., Alaskan, Japan, 218 bls. rags.
Castle & Overton, Inc., Amasis, Germany, 2,082 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING JULY 27, 1929

Spaulding Fibre Co., Sacandaga, Antwerp, 485 bls. flax waste.
Train Smith Co., Sacandaga, Antwerp, 210 bls. rags.
National Shawmut Bank, Sacandaga, Antwerp, 106 bls. rags.
Baring Bros. & Co., Sacandaga, Antwerp, 4 bls. rags.
Fidelity Trust Co., Sacandaga, Antwerp, 74 bls. rags.
Oxford University Press, Laconia, Liverpool, 12 cs. printing paper.
G. F. Malcolm & Co., Laconia, Liverpool, 4 cs. tissue paper.
Stora Kopperberg Corp., Kolsnaren, Skutskar, 250 bls. wood pulp.

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wishes to announce that a change has been made in the corporate name to

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Revolving Paper Cutters—Rag Cutters—Cylinder Paper Machines—Washing and Beating Engines—Chilled Iron and Paper Calenders—Fan and Stuff Pumps—Engine Roll Bars and Bed Plates—
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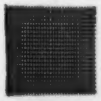

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New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, July 31, 1929.

Considering the exceptionally warm weather, the tone of the local paper market was fairly satisfactory during the past week. Demand for the various standard grades was moderately active. Sales forces of the leading paper organizations express a cheerfull sentiment and look forward to the Fall campaign with confidence. Prices are generally holding to schedule.

Production of news print is running at approximately 86 per cent of capacity in the United States and Canada. Shipments are moving at about 80 per cent of rating. Publishers stocks on hand are lower than for some time, according to statistics gathered by the American Newspaper Publishers Association, and the outlook for the Industry is decidedly brighter.

The paper board market is practically unchanged. The price situation is still unsatisfactory although an improvement in the near future is anticipated in some quarters. Conditions in the fine paper market are excellent for the time of year. Prices are holding to former levels. The coarse paper market is in a sound position. Summer specialties are in brisk demand and wrapping paper is still moving in good volume.

Mechanical Pulp

While no radical changes have been recorded in the ground wood market the undertone is somewhat firmer due to curtailed production both in North America and abroad. Lack of rain of late has also contributed to the decreased output. Demand is moderately active and prices are holding to previously quoted levels without difficulty.

Chemical Pulp

The bright particular feature of the chemical pulp market last week was the improved sentiment for both imported and domestic kraft pulp. Although prices have not advanced so far, the sentiment is decidedly firmer. Unbleached sulphite continues in a strong position. Bleached sulphite is steady. Other grades of chemical pulp are moving in a normal manner.

Old Rope and Bagging

Ste liness prevails in the old rope market. Domestic and foreign manila rope are still in excellent request and prices are being maintained at the recently advanced levels. Mixed strings are in fair request. The bagging market is irregular. Roofing bagging is moving in good volume, but gunny and scrap are rather quiet. Prices are unaltered.

Rags

Paper mill interest in the domestic rag market is fairly satisfactory for the time of year. Cotton cuttings continue moderately active, some grades moving in good volume. Roofing rags are in seasonal request, while mixed rags rule steady and unchanged. No radical changes were reported in the foreign rag market, where the demand for home consumption is heavy, and prices are high.

Waste Paper

The paper stock market is in a fairly sound position although business is rather quiet at present, with many paper mills on reduced schedule. Folded news and mixed papers are in fairly good demand from the board mills. Soft white shavings continue active. Book stock is very quiet at present. Despite some unfavorable factors, prices are holding to formerly quoted levels, in most instances.

Twine

Conditions in the twine market are favorable, although the prevailing demand is light for the moment. In most quarters a general revival of business is expected after the close of the midsumer holiday period. Quotations are generally holding up to previously recorded levels and there is not much talk of concessions around.

Fires Do Damage to Pulpwood

Effectiveness of the steel lookout towers and telephone service in combating forest fires was never better demonstrated than in the case of the Algonquin Park district of Northern Ontario, which, during the past ten days suffered no fewer than fifteen outbreaks, with an attendant total destruction, however, of less than ten acres of pulpwood and other timber. Ten of these fires started from lightning, three from camp fires, one from logging operations and one from a carelessly discarded cigarette butt. Several of the fires were within the park environs and the remainder on the outskirts. In spite of their scattered locations the forest rangers, by means of their seven lookout towers and the 460 miles of telephone wire available there for rapid communication, had crews at work on them almost as soon as they had started. Two new fires were reported to forestry headquarters on July 26 in a message from Sioux Lookout. These fires were located in the Patricia district, north of Pickel Lake, about 200 miles northeast from Sioux Lookout. Five fires were burning this week in the Armstrong district where crews are at work. Fires in the Red Lake district are reported to be well in hand. Weather reports from all districts, with the exception of the east around Cochrane, say conditions are hot and dry with rain badly needed.

In the Kenora district no new fires are reported but those in progress around Port Arthur are under control. In the Cochrane district the hazard is not so high, owing to a recent rainstorm. One fire is under control near Abitibi. Around Sault Ste. Marie the hazard is high, also at Sudbury and North Bay. In the Georgian Bay and Muskoka districts the weather is reported as hot and dry, with four small fires and conditions hazardous for lack of rain. In the Trent watershed nine small fires burned a small area but they are all out.

Noble & Wood Develop Felt Washer

HOOSICK FALLS, N. Y., July 29, 1929.—Eugene H. Lansing is now associated with the Noble & Wood Machine Co., for the purpose of developing and marketing a new improved Felt Washer.

Mr. Lansing is a familiar figure in the paper industry, having long been identified with practical methods of cleaning and preserving paper machine felts.

The industry will await with interest an important announcement soon to be made as a result of this combination of Mr. Lansing's technical skill and experience and the facilities and resources of the Noble & Wood Machine Company.

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Approved chemists to American Paper and Pulp Association and American Association of Woodpulp Importers.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, July 31, 1929.

BLANC FIXE.—The blanc fixe market is practically unchanged. Shipments are going forward in satisfactory volume. Prices remain steady. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk, while the powder is still selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Most of the business transacted in the bleaching powder market was along routine lines. The contract movement is well up to average for the season. Prices are holding to schedule. Bleaching powder is quoted at from $2.00 to $2.35 per 100 pounds, in large drums, at works.

CASEIN.—No radical changes were reported in the casein market. Domestic casein is quoted at from 14½ cents to 15½ cents per pound, Argentine standard ground is selling at from 14¼ cents to 15½ cents per pound and finely ground at from 15¾ cents to 16 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. Supplies are moving into consumption in good volume. Prices remain unchanged. Solid caustic soda is quoted at from $2.90 to $2.95, while the flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—Trading in the china clay market was moderately active. Contract shipments are proceeding in a normal manner. Prices remain unaltered. Imported china clay is quoted at from $15 to $25 per ton, ship side, while domestic paper making clay is selling at from $8 to $15 per ton, at mine.

CHLORINE.—The chlorine market is displaying a strong undertone. Prices are holding to previously quoted levels without difficulty. Chlorine is quoted at 3 cents per pound, in tanks, or multi-unit cars, at works, on standard contracts. The spot quotation ranges from 3¾ cents to 3½ cents per pound.

ROSIN.—Conditions in the rosin market have improved slightly. The grades of gum rosin used in the paper mills are now quoted at from $8.75 to $8.80 per 280 pounds, in barrels, on dock. Wood rosin is selling at from $6.75 to $7.80 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—The salt cake market continues to display strength. Shipments against contract are moving in excellent volume. Prices are holding to schedule. Salt cake is quoted at from $17 to $21 per ton, while chrome salt cake is still selling at from $14 to $15 per ton, in bulk, at works.

SODA ASH.—Supplies of soda ash are going forward to the paper mills in satisfactory volume for the time of year. Demand for this product is persistent and prices are holding to schedule. Contract quotations on soda ash, in car lots, at works, are as follows: in bags, $1.32½; and in barrels, $1.55.

STARCH.—Demand for starch is well maintained and the market is in a satisfactory condition for the season. Offerings are about sufficient to take care of current requirements. Prices are unchanged. Special paper making starch is quoted at $3.82 per 100 pounds, in bags, and at $3.99, in barrels.

SULPHATE OF ALUMINA.—The sulphate of alumina market was moderately active. Contract shipments are moving at a regular pace. Prices remain unchanged. Commercial grades of sulphate of alumina are quoted at from $1.40 to $1.55, in bags, and iron free at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—Consumption of sulphur is being maintained in good volume. Prices remain unaltered. Sulphur is quoted at $18 per ton, in lots of 1,000 tons, or over, on yearly contracts, and at $20 per ton for any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—The talc market continues steady and unchanged. Demand for this product is seasonal. Prices are holding to schedule, without difficulty. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines, while imported talc is selling at from $18 to $20 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@53.25
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00
Book, Cased—		
S. & S. C.	6.00	@ 7.50
M. F.	5.75	@ 7.00
Coated and Enamel	7.50	@12.00
Lithograph	7.50	@12.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.35	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .80
Kraft	1.00	@ 1.10
Manila	.75	@ .80
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	5.25	@ 5.50
Southern	4.25	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

News, per ton—		
Rolls, contract	62.00	@ —
Rolls, spot	62.00	@ —
Sheets	67.00	@ —
Side Runs	47.00	@52.00
Boards—per ton—		
News	37.50	@40.00
Straw	52.50	@55.00
Chip	35.00	@37.50
Binders' Boards	65.00	@70.00
Sgl. Mla. Lt. Chip	47.50	@50.00
Wood Pulp	80.00	@85.00
65 Test Jute Liner	52.50	@ —
85 Test Jute Liner	55.00	@ —

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	28.00	@31.25
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@29.00
Screenings	15.00	@20.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.40
Easy Bleaching	2.90	@ 3.10
No. 1 strong unbleached	2.70	@ 3.00
Mitscherlich unbleached	2.75	@ 3.25
No. 2 strong unbleached	2.40	@ 2.50
No. 1 Kraft	2.40	@ 2.75
No. 2 Kraft	2.35	@ 2.50
Sulphate—		
Bleached	3.60	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.65	@ 3.00
News Sulphite	2.50	@ 2.70
Mitscherlich	3.00	@ 3.25
Kraft (Domestic)	2.50	@ 3.30
Soda Bleached	3.10	@ 3.25
Sulphate Screenings—		
Coarse	.75	@ .95
Refined	1.65	@ 1.85

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.00	@11.50
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.50	@ 8.00
New Unbleached	11.00	@11.50
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Blue Overall	7.50	@ 8.00
Washables	4.75	@ 5.25
Fancy	5.75	@ 6.25
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.15	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.55	@ 1.65
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.90	@ 1.05

Foreign Rags

New Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cuttings	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50

Old Rags

No. 1 White Linens	7.50	@ 8.25
No. 2 White Linens	5.75	@ 6.75
No. 3 White Linens	4.75	@ 5.25
No. 4 White Linens	3.00	@ 3.50
No. 1 White Cotton	5.50	@ 6.50
No. 2 White Cotton	4.50	@ 5.50
No. 3 White Cotton	3.00	@ 4.00
No. 4 White Cotton	1.90	@ 2.15
Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	2.00	@ 2.10
Dutch Blue Cottons	2.25	@ 2.40
French Blue Linens	2.75	@ 2.85
German Blue Linens	2.35	@ 2.55
German Blue Cottons	2.15	@ 2.25
Checks and Blues	1.85	@ 2.00
Lindsay Garments	1.85	@ 1.95
Dark Cottons	1.60	@ 1.65
Old Shopperies	1.55	@ 1.60
New Shopperies	1.50	@ 1.60
French Blues	2.10	@ 2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.60	@ 1.70
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, Heavy	1.60	@ 1.70
Bright Bagging	1.60	@ 1.70
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	4.60	@ 4.85
Domestic	5.00	@ 5.25
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, white, No. 1	3.25	@ 3.50
Hard, white, No. 2	2.40	@ 2.55
Soft, White, No. 1	2.50	@ 2.60
White envelope cuttings	3.00	@ 3.50
Flat Stock—		
Stitchless	1.60	@ 1.70
Overissue Mag.	1.50	@ 1.60
Solid Flat Book	1.40	@ 1.50
Crumpled No. 1	1.00	@ 1.10
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.40	@ 1.50
New B. B. Chips	.65	@ .75
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.50	@ 1.75
Extra No. 1 old	1.25	@ 1.35
Print	.75	@ .80
Container	.57½	@ .60
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	1.90	@ 2.00
News—		
No. 1 White News	1.65	@ 1.75
Strictly Overissue	.75	@ .80
Strictly Folded	.57½	@ .62½
No. 1 Mixed Paper	.42½	@ .47½
Common Paper	.30	@ .35

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Philadelphia Paper Mfg. Co., Phila., three orders, total ..... 2400 H.P.
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For Daily Newspaper Co., North Tonawanda, N. Y. ..... 2034 H.P.
Filer Fibre Company, Filer City, Mich. ..... 1500 H.P.
John Lang Paper Co., Philadelphia, Pa. ..... 416 H.P.
Bayless Manufacturing Corp., Austin, Pa. ..... 1300 H.P.
Northern Board & Paper Co., San Francisco, Cal., two orders, total ..... 400 H.P.
Crown Williamette Paper Co., San Francisco, Cal., two orders, total ..... 750 H.P.
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Twines
(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.19	@	.21
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger	.16	@	.17
Fine Tube Yarn—			
5-ply and larger	.21	@	.25
4-ply	.25	@	.29
3-ply	.28	@	.32
Unfinished India—			
Basis	.13	@	.14
Paper Makers Twine			
Balls	.11	@	.12
Box Twine, 2-3 ply	.15	@	.17
Jute Rope	.17	@	.19
Amer. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.16	@	.18
No. 2 Basis	.14	@	.16
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Rope	.22	@	.24

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¾
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06¼	@	.06½
Southern Kraft	4.25	@	4.50
No. 2 Kraft	.04	@	.04¾
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¼
White Tissue—			
20x30 Sheet	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	37.50	@	42.50
Solid News	47.50	@	—
Solid News	40.00	@	45.00
Manila Lined Chip	50.00	@	55.00
Container Lined—			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.20	@	2.25
White Env. Cuttings	2.40	@	2.50
No. 1 Soft Shavings	2.00	@	2.10
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.70	@	.75
Ledger & Writings	1.25	@	1.35
Solid Books	1.25	@	1.30
Blanks	1.40	@	1.50
Krafts	1.60	@	1.75
New Kraft Cuts	2.15	@	2.25
Manila Envelope Cuttings	1.65	@	1.75
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.75	@	.80
Folded News (over-issue)	.80	@	.85
Old Newspapers—			
No. 1	.65	@	.70
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.60	@	.65
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.06	@	.40
Ledgers	.09	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.10	@	.20
Book, M. F.	.05½	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.09½	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.08	@	.09
Manila Sul., No. 1	.04	@	.05½
Manila No. 2	.03	@	.04
No. 2 Kraft	.06	@	.06½
No. 1 Kraft	.06½	@	.07
Common Bogus	.03½	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	52.50	@	75.00
News Board	35.00	@	40.00
Chip Board	32.00	@	40.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.10½	@	.11
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07	@	.09
Black Silesia, soft	.05	@	.05¾
New Unbleached	.10½	@	.11
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03¼
Fancy	.05½	@	.06
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.20	@	3.25
No. 2 Hard White	2.75	@	3.00
No. 1 Soft White	2.80	@	2.90
No. 2 Soft White	1.80	@	1.90
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.85	@	1.90
Writing Paper	1.60	@	1.65
No. 1 Books, heavy	1.40	@	1.50
No. 2 Books, light	1.05	@	1.15
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	.95	@	1.00
Container Manila	.85	@	.90
Old Kraft	2.25	@	2.50
Common paper	.50	@	.55
No. 1 Mixed Paper	.60	@	.65
Straw Board, Chip	.60	@	.65
Binders Board, Chip	.60	@	.65
Overissue News	.80	@	.85
Old Newspaper	.50	@	.55

Domestic Rags (Old)

White, No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
White, No. 2	2.00	@	2.25
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.65	@	1.75

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05¾	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.06¼	@	.06½
No. 2 Kraft	.04½	@	.05½
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print Rolls	61.50	@	—
Straw Boards, rolls .009			52.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board	37.50	@	40.00
Chip Board	35.00	@	37.50
Single Manila Lined Chip	47.50	@	50.00
Single White, Patent Coated Newsboard			
Bender	65.00	@	80.00
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.40	@	2.50
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	1.50	@	1.55
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	.90	@	1.00
White Blank News	1.50	@	1.60
Old Kraft	1.75	@	1.80
Print Manila	.80	@	.90
No. 1 Mixed Paper	.40	@	.45
Overissue News	.65	@	.70
Old Newspapers	.50	@	.52½
Box Board, Chip	.55	@	.60

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.50	@	1.75
Manila Rope—			
Foreign	4.75	@	5.00
Domestic	5.00	@	5.25
Transmission Rope	2.00	@	2.25
Mixed Strings	.90	@	1.00
Jute Wool Strings	1.00	@	1.05
Jute Carpet Threads	1.00	@	1.10
Scrap Burlaps	1.37½	@	1.50
Scrap Sisal	1.87½	@	2.00
Scrap Sisal for shredding	1.85	@	2.00
Wool Tares, heavy	1.60	@	—
New Burlap Cutting	1.90	@	2.00
Australian Wool Pouches	3.00	@	3.12½

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09½	@	.10
Silesias, No. 1	.06	@	.06¼
New Unbleached	.10	@	.10½
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.04	@	.04¼
O. D. Khaki	.05	@	—
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.75	@	3.00
Thirds and Blues—			
Repacked	2.50	@	—
Miscellaneous	1.75	@	1.90
Black Stockings	—	@	4.00
Roofing Stock—			
No. 1	1.65	@	1.75
No. 2	1.45	@	1.55
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags
(F. o. b. Boston)

Dark Cottons	1.55	@	1.60
New No. 1 Shirt Cuttings	9.00	@	10.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	5.00	@	5.12½
New Checks & Blues	4.25	@	4.60
Old Fustians	1.90	@	—
Old Linsey Garments	1.85	@	1.90

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¾	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	11.50	@	—
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.00	@	—
Repacked	.02½	@	.03¾
No. 2	1.30	@	1.35
No. 3 (Roofing)	1.15	@	1.25
No. 4	1.00	@	1.15
No. 5A	.75	@	.85
B	.65	@	.75
C	.65	@	.75
(Delivered Toronto)			
News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	31.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	60.00	@	—
Sulphite, bleached	77.00	@	—
Sulphate	60.00	@	—

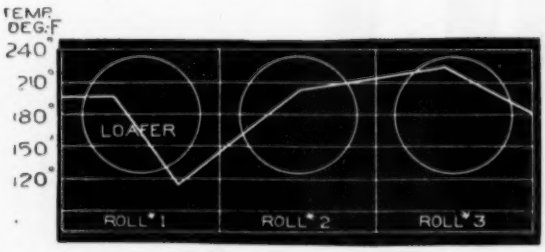
Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk. News	1.60	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.85	@	—
Strictly Folded	.85	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.10	@	.10¼
Fancy Shirt Cuttings	.05½	@	—

Cambridge Instruments



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PAPER TRADE JOURNAL

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THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

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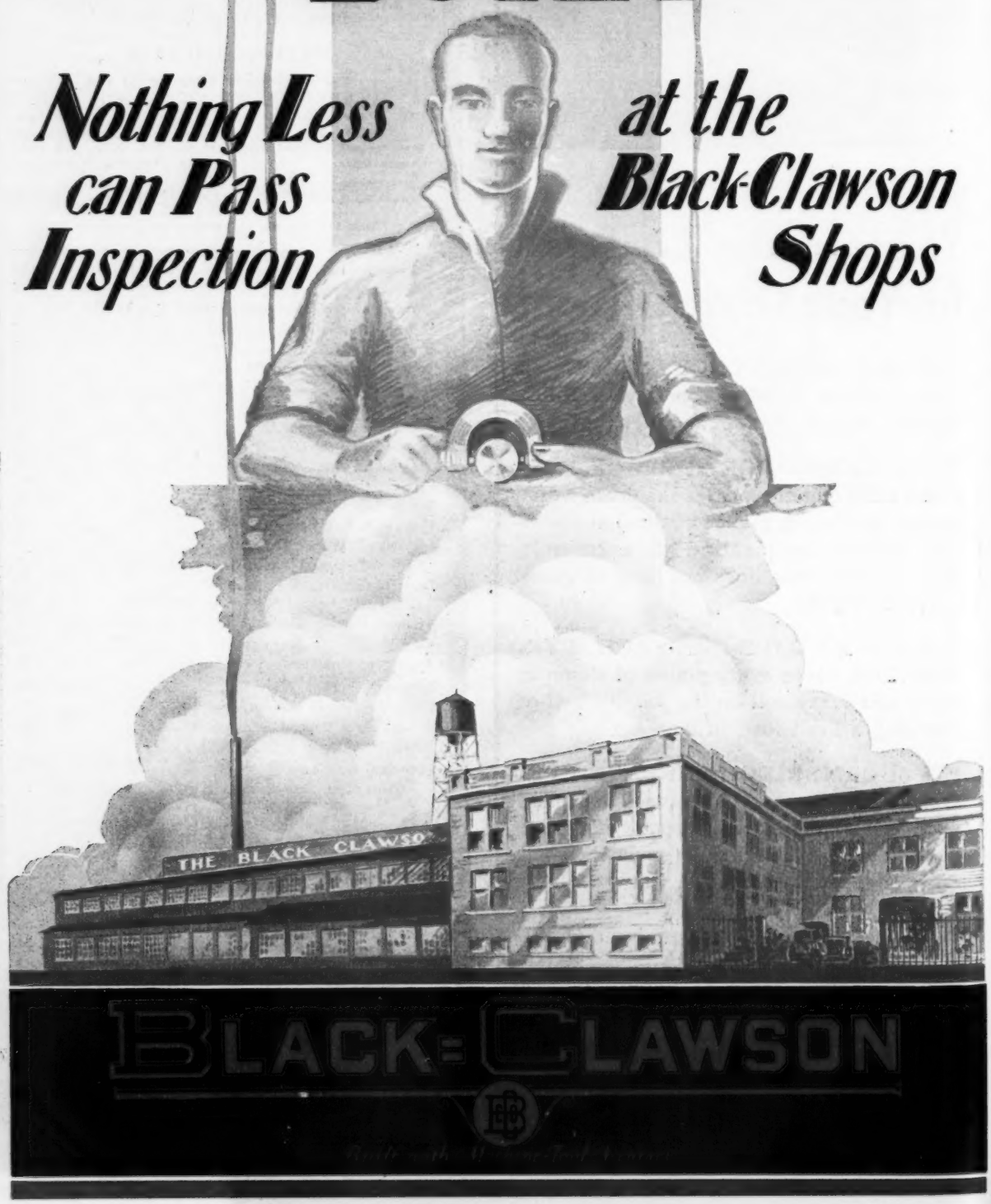
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